May 1999
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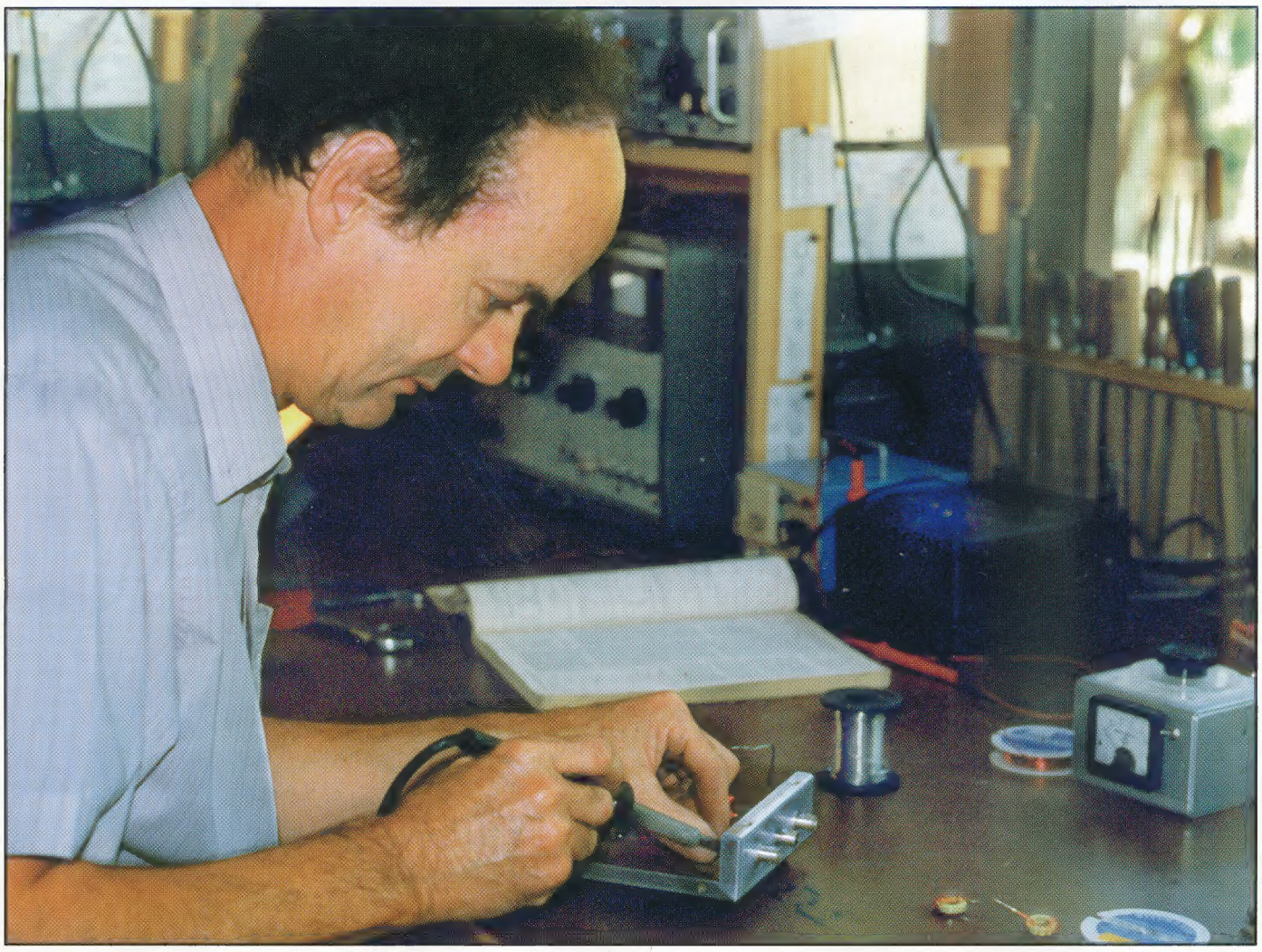
Amateur Radio

Journal of the Wireless Institute of Australia



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- APRS in the 1998 Sun-Herald City to Surf Race
- Twin Meter SWR Bridge
- CTCSS Tone Decoder
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- LIPD Devices in Australia
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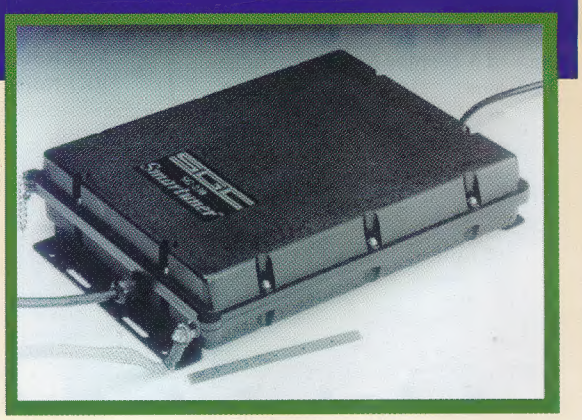

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Our cover this month

Drew Diamond VK3XU
hard at work on yet another project to share with fellow amateurs.

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted, at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published..

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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The Australian Amateur Radio Service

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Peter Naish	VK2BPN

EDITORS COMMENT

Hamads

One of the most popular services provided by this magazine is the page or two of members' advertisements placed just inside the back cover.

Up to eight lines per issue can be inserted free, with two more free lines for the address details. Forms are provided on the back of the "fly sheet" address label included with each AR for you to write out your Hamad in neat block capitals, or use a typewriter (if there are any left in this computer age!).

Some months ago I was asked by our then Production Manager Bill Roper VK3BR to mention in an editorial some of the difficulties he had from time to time in dealing with the Hamads. Time galloped on, Bill ceased to be Production Manager, and several months elapsed before the topic could be "resurrected".

So here we are: the facts and factors of Hamads.

Most of the ads are from the two most populous states, NSW and Victoria. I guess that's no surprise. The actual numbers "ebb and flow" somewhat. We had 40 last month. A minimum of perhaps 20 up to a maximum approaching 100 probably covers all cases.

These days many arrive by fax and e-mail as well as by post. No matter how they come they have to be read and keyed in. Sometimes we have problems reading them. That's the reason for wanting block capitals or typing. Abbreviations and punctuation are areas where confusion can arise. If you are in doubt check in a few back issues and see what abbreviations are popular.

Handwritten faxes are often quite difficult to read. The best method is e-mail direct to our typesetters (Newsletters Unlimited). They have the task of putting the ads all together so that your hapless Editor can check them, or delegate the task to someone else as time permits.

So there it is. We look forward to your next Hamad!

73 Bill Rice VK3ABP Editor

Note: Hamads sent by e-mail to newsl@webtime.com.au arrive quicker and are entered electronically, exactly as you write them. If you do not have e-mail do not worry, any form is OK, but legibility is important.

NEW WIA MEMBERS

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of MARCH

L21163	MR M GRIFFIN	VK2XEG	MR A R HOOD
L21164	MR G G PEARCE	VK2ZJS	MR J DRINKWATER
L21165	MR D W WINCKLE	VK3ET	MR J A CLARK
L21166	MR P M PASCOE	VK3TFG	MR F W GREGORY
L21167	MR G C HILL	VK5GX	MR P M SPINKS
L50747	MR G BANGETER	VK5HS	MR I SMITH
L50748	MR L J CHAPMAN	VK5TTL	MR L J MAY
L50749	MR L J MORRIS	VK6KLN	MR L A NORTH
L50750	MR A G ROBINSON	VK6NKT	MR G L GARRATT
L50751	MR A IANNELLA	VK7HJD	MR J D DABNER
VK1HAG	MR S AMMOSCATO	VK7HSE	MR S V EVANS
VK1JA	MR J A HEWSON	VK8JJ	MR J J LAMBERT
VK1WR	MR J W RAWLINGS		
VK1ZQR	MR R C QUICK		
VK2CRC	MR R J COLEMAN		
VK2DHI	DR H P H IVENS		
VK2HCF	MR C FORKIN		
VK2KNR	MR N E RUSSELL		

The WIA regrets to announce the recent passing of:-

B G POWELL	VK2AIZ
V (FRANK) WALLER	VK2EHY
L A CHAPPELL	VK7LC

Comment

Federal President, Peter Naish VK2BPN.

Busy time for WIA

This is a particularly busy time of the year for the WIA.

It is in autumn that many of the WIA State Divisions hold their Annual General Meetings and elect their Councils and Officers for the year ahead.

On these occasions the members have the opportunity to voice their opinions on how they see the WIA performing. Hopefully some new ideas on future policy will emerge for incorporation into the log of issues that are continually pursued by the WIA Federal Council.

In May, we have the Annual Convention of the WIA Federal Council where national and international matters are reviewed and progressed to provide a national policy for implementation with the ACA and IARU.

The WIA Federal ACA Liaison Committee is continuing its dialogue with the ACA in Canberra. Recent matters which have been prominent include the entry into the 70 cm band of a variety of Low-Interference-Potential Devices (LIPD's) under a class licence scheme established a few years ago by the ACA (then the SMA).

Unfortunately for some amateur radio users, these LIPD's have become a source of great concern and annoyance with a number of recent cases of interference to amateur radio repeaters alleged to be due to such devices. Your liaison committee is continuing to seek ways of overcoming this threat to our long established repeater stations.

The long–awaited report from ACA on the possible extension of the 80 metre DX window has now arrived. It contains some positive options for the amateur radio usage of the DX window and is being reviewed by the Liaison team

Recently, the WIA met with representatives of DOCITA (Department of Communications, Information Technology and the Arts) in Canberra to provide additional support to our recent submission on the review of the Radio-Communications Act.

This proved to be a very fruitful meeting with the Department's representatives gaining a first hand knowledge of the desires and concerns of the Amateur Radio Service in Australia. They showed considerable interest in the WIA's submission and promised to continue the association with us.

It seems that in this life very little comes free!

The continual pursuit of better representation for amateur radio enthusiasts is no exception. Again, I must commend the many volunteers who spend long hours devoting their spare time to working to resolve the many issues that worry us. Please give them the support they deserve.

We can all confidently answer our critics by saying that the WIA is very much "doing something about it" but it does take time to achieve some of our goals.

Peter Naish, VK2BPN
WIA Federal President.

WIA News

WIA News Prepared, researched and compiled by
David Thompson VK2NH
Federal Public Relations Coordinator.

Mobile Telephone Jammers Prohibited

The Australian Communications Authority (ACA) has declared mobile telephone jammers to be prohibited devices under the *Radiocommunications Act 1992* (the Act).

The prohibition makes it an offence to operate or supply, or possess for the purpose of operation or supply, such a device. The ACA's decision was made following public consultation, and is the first time the ACA has prohibited the use of a device under the Act.

The declaration describes the prohibited device as 'a device designed to operate within the frequency bands 870-960 MHz or 825-845 MHz and to interfere with radio-communications or disrupt or disturb radio-communications'. These bands are used primarily for mobile telephone services.

The ACA is prepared to take action, including prosecution, if necessary, against any person operating or supplying a jammer, or possessing a jammer for the purpose of operation or supply, that is likely to affect these frequency bands. Penalties include substantial fines and imprisonment.

The ACA's spectrum management responsibilities are to facilitate access to the radiofrequency spectrum for all forms of radio-communications, including those used to provide public mobile telecommunications services.

ACA now Reporting on Telecommunications Y2K Readiness

The Australian Communications Authority (ACA) has released its *Telecommunications Performance Monitoring Bulletin* for the December 1998 quarter.

The bulletin reports on carrier performance in the fixed and mobile phone networks, and, for the first time, includes a report on the Y2K readiness of the telecommunications industry. The ACA will provide regular reports on this issue leading up to 1 January 2000 and during 2000.

The state of Y2K readiness has significant potential to affect network integrity, the quality of service of the carriers and consumer satisfaction. A high level of awareness exists within the industry regarding the Y2K issue.

The ACA will expand the format of future Y2K reporting to include access to emergency services and effects on customer equipment.

A copy of the Telecommunications Performance Monitoring Bulletin, can be obtained from the ACA by calling (03) 9963 6968.

New Phone Number for WICEN New South Wales

WICEN (NSW) is reported to have a new digital telephone. David Horsfall VK2KFU tells us the number is 0408-397-217.

APRS

If you are interested in APRS, there is a mailing list for Australian participants, according to Darryl Smith VK2TDS. For details, send an e-mail message to VK2TDS@ozemail.com.au

To see APRS working on the Internet, just look at the URL http://www.aprs.net

WIA News *continues*

Sun Powered

WIA News has recently been told about Bill May VK2WHM out Weetalibah way, which is in the Central West of New South Wales, (in fact seven miles the other side of the black side of the black stump).

It seems that Bill has an interesting solar power setup for his amateur gear.

About 10 years ago he made up a bank of cells that track the sun. Bill says that tracking is about 40% more efficient than not tracking.

Among the advanced state of the art equipment he uses is the complete rear axle with differential of a car and a record player motor plus of course the electronics and simple sensing for tracking.

Thanks to NSW Councillor Ken Westerman VK2AGW who says we could make quite an article out of Bill's ingenuity.

Staff Changes at the ARRL.

David Patton, W9QA, will join the ARRL staff April 26 as Special Assistant to Executive Vice President Dave Sumner K1ZZ.

Dave is a former editor of the *National Contest Journal*. He holds a Bachelor's and Master's Degrees in Geography from Western Illinois University.

Via ARRL

International Space Station Commander is a Ham

The expedition commander of the first International Space Station crew is now a ham radio operator.

U.S. astronaut William G. "Shep" Shepherd, was issued the call sign KD5GSL. This after passing a Technician class exam.

Once it is habitable, Shepherd will join Russian cosmonauts Yuri Gidzenko and Sergei Krikalev on board the ISS.

Via ARRL

FCC Says Reciprocal Permits Now Paperless

The FCC is advising applicants for reciprocal operating permits that an application is no longer required.

Under new ULS rules that took effect February 12, the FCC Form 610A has passed into history.

The new rules also will pave the way for US hams to more easily operate in most of Europe.

The FCC is expected to issue a Public Notice in the near future that will spell out the details.

"Alien" visitors to the US holding an amateur licence issued by their home country may operate in the US without submitting any FCC paperwork—provided that a reciprocal operating agreement is in effect between the two countries.

The only documentation required is proof of citizenship and an Amateur Radio licence issued by the country of citizenship.

These arrangements are similar to longstanding arrangements between the US and Canada.

The new rules move the US a step closer to participation in the licensing arrangements of CEPT, the European Conference of Postal and Telecommunications Administrations.

The US State Department applied for US participation in 1997, and the request was approved in early 1998.

Completion of the final steps to make this a reality is understood to be imminent. These steps include formal US notification to the European Radio-communications Office that it is prepared to carry out its responsibilities under CEPT Recommendation T/R 61-01, and the issuance of a *Public Notice* in English, French and German.

Under the CEPT arrangements, a US Technician licencee will be recognized as holding the equivalent of a CEPT Class 2 (VHF-only) licence.

Holders of Tech Plus through Extra tickets will have the full HF and VHF privileges of a CEPT Class 1 license. Novice licencees will not be eligible.

Additionally, the ARRL has informed the US State Department that it plans to go forward in April with arrangements to issue International Amateur Radio Permits to US hams in accordance with the CITEL Amateur Convention, signed by several countries in the Americas.

The League has offered its services to issue IARPs to US hams. An IARP is not a licence, but it certifies the existence of a licence.

The new rules will not change the procedures for US hams wishing to operate overseas in countries that are not CEPT members or CITEL Amateur Convention signatories.

Got some news that you think would interest members?

talk to the editor

Low Powered Devices in the band 433.05 to 434.79 MHz

Provided by ACA

Introduction

The authorised operation of low powered devices in the radio frequency band 433.05 to 434.79 MHz is supported through the Australian Communications Authority's (ACA) class licence for low interference potential devices (LIPDs).

Specifically, item 17 of the schedule to that class licence provides for the operation of all transmitters in this band up to a maximum equivalent isotropically radiated power (EIRP) of 25 mW. This is one of many relatively small bands established throughout the radiofrequency spectrum at operating frequencies ranging from a few kilohertz to many tens of gigahertz that support the licensed use of a wide range of LIPDs which provide benefit to the Australian community.

This summary explains the considerations that led to the introduction of this provision in the class licence.

Need for the LIPD allocation

The ACA has statutory responsibilities under the Radiocommunications Act which essentially relate to maximising the public benefit in the use of a national resource. In exercising this spectrum management function on behalf of all of the Australian people, the ACA tries to accommodate the needs of all groups of users. Where there are competing demands for access to particular parts of the spectrum, the ACA tries to take a balanced approach in weighing up these demands. In making these sorts of decisions, the ACA will typically consider:

- domestic and international spectrum allocations;
- likely demand;
- public benefit;
- international regulatory arrangements;
- interference potential and effects on incumbents.

The band 433.05 MHz to 434.79 MHz is shared by Amateur Radio, low-powered applications and the radiolocation service. The radiolocation service is the only primary service in this band. Other services operating in this band must not cause harmful interference to the primary service, and are not afforded protection should they receive harmful interference from that primary service.

Amateur applications in the 433.05 MHz to 434.79 MHz band (1.74 MHz bandwidth) include FM repeaters and FM

simplex services. Amateur services operate on a secondary basis over the wider band 420 to 450 MHz (30 MHz bandwidth) and in a number of other bands throughout the radiofrequency spectrum. That is, the segment allocated for LIPDs overlaps just 6% of the 30 MHz bandwidth used by amateurs in this band.

Arrangements to support low powered devices in the 434 MHz band came into to the LIPDs class licence in June 1997 to support a growing demand for such applications sourced mainly from Europe, part of International Tele-communication Union (ITU) Region 1. In many countries in that Region, the band 433.05 to 434.79 MHz has a long-standing designation for industrial, scientific and medical (ISM) applications[1]. ISM applications use radiofrequency energy for their function but are not radio-communications devices (eg, microwave ovens).

A significant international manufacturing trend is to develop communications devices to operate at low power and on an uncoordinated basis in ISM bands. Radiocommunications devices operating in designated ISM bands do so on the internationally established basis that they must accept any interference they may receive from ISM applications. Products have been developed for ISM bands that are common world-wide and in other bands adopted in major regions for ISM. As a consequence of the European adoption of the 434 MHz band for ISM, manufacturers have developed a range of low powered radiocommunications products for that band.

From a review of international regulatory arrangements it was clear that European countries, and the United States of America to a lesser extent, supported the operation of low powered devices in the band 433.05 to 434.79 MHz. Whilst Australia is in ITU Region 3 geographically, we are continually approached by customers, importers, manufacturers, retailers, etc to support products that are designed in other countries and not necessarily in accordance with Region 3 spectrum arrangements. In Australia by 1996/97 there was a strong and increasing demand to operate European based low powered applications designed to operate in the 434 MHz band.

The ACA decided that it was in the public interest to facilitate the operation of these devices in Australia. ACA believes that this benefit significantly outweighs the relatively small loss suffered by amateur users.

A factor in that decision was a concern that, being prevalent in many other countries, the devices would be imported anyway, as happened in the case of the 900 MHz band which is used widely in Region 2 for these sorts of devices.

Feasibility for continued Amateur operations

The band chosen for LIPD operation was aimed to achieve commonality with international developments. The associated power cap of 25 mW was set at a level that balanced the identified needs against the overall utility of the band for uncoordinated LIPD operations (a few countries allow up to 500 mW transmitters in this band for such operations). The class licence specifies the essential technical conditions and does not specify the type of application for this band. The regulatory approach czásen is deliberately intended to minimise the need for unique Australian products and so maximise the public benefit.

Having made the basic decision to develop a class licence, studies assessed the potential for continued operation of amateur services in the segment. It is recognised that interference from LIPDs is possible in some circumstances and is probably more likely in heavily populated areas, but there is still a lot of potential for amateurs to continue to use the segment if they wish.

ACA officers are liaising with the WIA on this issue. One aspect discussed is what interference mitigation steps might be taken.

The ACA encourages the amateur community to review the technical viability of its repeater network in its current configuration (the European repeater configuration is unlike Australia's and is less susceptible to LIPD interference). The ACA would expect that, given the very nature of the amateur hobby itself, and the associated technical skills held by amateur enthusiasts, they would be much better placed than most users to identify which repeaters may be more susceptible to interference and take protective measures.

Summary

The ACA believes that development of the criss licence to support LIPDs is clearly in the public interest. Further, the ACA believes that the conditions of the class licence are appropriate and should not be changed or further restricted in the types of applications allowed.

The total loss to the amateur community is relatively small. The ACA would encourage the amateur community to make realistic assessments of the likely levels of interference. If the levels of interference or operational constraints are judged to be too high, the ACA would encourage the amateurs to consider ways to modify the repeaters to build-in better immunity.

End Note: Australia is part of ITU Region 3. The band 433.05 to 434.79 MHz is not a designated ISM band in Australia.

ar

ICOM Clearly Ahead

"VK3LZ calling!"

More sound information from your friends at Icom

AN AMATEUR RADIO RESURGENCE?

There are strong indications that amateur radio is going through a real resurgence.

The recent Wyong Hamfest had a record attendance with significant sales of the latest units. Two smaller events also set records of their own recently. They were the Eastern and Mountain Districts Radio Club White Elephant Day on March 14, and the Burnie Hamfest on March 20. In addition to traditional swap meet activities, these events saw extraordinary sales of equipment from CBs to the most sophisticated base units.

At Icom we have just ended our financial year and our sales have increased significantly across the board, from marine radios, land mobiles, and airband, to CB and amateur rigs.

It would seem radio sales and usage in Australia have never been healthier!

MAKE OUR WEBSITE YOUR INFORMATION SOURCE

The Icom website has become a valuable information source for amateur radio enthusiasts across the country. If you haven't visited, make sure you drop by soon on www.icom.net.au

DATES TO REMEMBER

Moorabbin Hamfest ~ Saturday May 8
Mount Gambier Hamfest ~ Sunday June 13
Icom Day at Amateur Transceiver Radio Centre, Sydney ~ Saturday June 19

"...73"

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Divisional News

Forward Bias

VK1 Notes

Peter Kloppenburg VK1CPK

I hope that *AR* arrived in your letterbox before the Solar Boat Race on Saturday, May 1, or the FAI Rally on May 7, 8, or 9.

If it did, then here are some details about these events.

Frequencies in use are: 146.900 MHz and 438.525 MHz.

These frequencies are supported by backup frequencies on: 146.950 MHz and 438.375 MHz. Phil Longworth, VK1ZPL, is the coordinator for both events, and can be contacted as follows:

Email: plongw@mpx.com.au.

Packet: VK1ZPL@VK1BBS,

Phone: 6216 8995, AH 6241 5797,

Mobile: 0416 216 003, FAX: 6216 8988.

Mike Walkington, VK1KCK, is the communicator deployment officer for the FAI Rally. WICEN volunteers should contact him in the first instance.

You can reach him via email on: mikew@netspeed.com.au or by home phone on: 02 6291 2552.

The above mentioned events are being supported by WICEN (Wireless Institute Civil Emergency Network).

As the name says, the network becomes activated when a civil emergency occurs anywhere in the community and communications must be established.

This could include the use of mobile or portable VHF and UHF equipment, repeaters, HF point-to-point, and satellite links. Luckily for us, no civil emergency has occurred here yet.

It could happen though! To prepare WICEN volunteers for such an emergency, the VK1 Division organises communications support exercises.

One type of exercise is fox hunting.

This is where a small VHF transmitter (the fox) is hidden somewhere in an unusual location, and the hunters use radios with directional antennas to locate the transmitter. It is not only a lot of fun, but you learn your way around the ACT as well.

An added benefit is that the hunters get experience handling their equipment while on the run in the open field.

The hilly terrain in the ACT imposes certain restrictions on propagation paths.

To overcome these restrictions, knowledge of the local area is essential and knowing where the roads and tracks are is critical to being the first to find the fox.

The other type of communications exercises is in the provision of support to field events such as a boat race, a car rally, or a two-day medal walk.

In these events voice communications between the organisers, marshals, and relay stations are essential for success.

The benefit to WICEN volunteers is similar to the ones obtained during fox hunts, but also includes learning net operating discipline, and how to accurately relay voice messages.

The VK1 Division is always keen to attract new WICEN volunteers, and to train as many of them as possible in case the really big event occurs.

You can use your communications equipment for the benefit of the ACT community by joining WICEN and learning to become an efficient operator.

Contact Phil Longworth, VK1ZPL, who is the WICEN coordinator for the ACT.

The next general meeting of the VK1 Division is on May 24, in room Nr.1, Griffin Civic Centre, Canberra City.

QNews

VK4 Notes

Alistair Elrick QTC Editor

As I write this, it is just 2 days before the WIAQ Annual General Meeting and brings to a close the 1998-1999 Council year.

It has been personally both rewarding and frustrating to come to grips with the needs of running the Division, since I became involved in July last year as Treasurer.

I believe it is a little better in some aspects from what I started with 10 months ago, but recent experiences tell me it could always have been better again.

I see some very good positives for VK4, both within the WIAQ itself and in the Club scene. The QSL Bureau and Bookshop/ Disposals have been very successfully run by their respective managers Laurie VK4BLE and John VK4AFS and provide both good service and viable financial returns to members.

Several clubs have raised their profiles within the amateur community and with the public, which is commendable as well as necessary to maintain a vibrant hobby for us all to enjoy.

Notable among the public profile opportunities is Redcliffe Club being offered space in the upper level of the Kippa-Ring Shopping Village to put on Saturday displays.

The club is looking for a volunteer to set up and supervise an active display of packet, VHF and whatever else may grab the attention of prospective amateur radio operators. They will need volunteers to actually run the display on a roster basis, so all interested persons can contact the club to add to the work force or the display range. So roll up all club reps and promote your particular aspect of AR.

Caboolture Club will have been on the road and on the air with club callsign VK4QD on April 24 from Kilcoy.

The club was asked to put on a demonstration and display of Amateur Radio during the Kilcoy Show, highlighting its communication and emergency value to the community. Sounds like a good opportunity for other clubs to do the same, so volunteer if you are not asked. Promotional brochures are available from your divisional office.

Congratulations to WIAQ Regional Representative Neil VK4NF for clocking up 12 issues of Dalby Clubs Packet news bulletin, MiniNews. Yep it's survived for one whole year!

If you're in the area west of Toowoomba give some serious thought to supporting Dalby club. To contact the club write to The Secretary at 15 Bunya St Dalby 4405 or

VK4NF @ VK4YH and by phone (07) 4662 4950.

Clive VK4ACC, Secretary of the RADAR Club (Rockhampton and District) reports the following office bearer positions were keenly snapped up at their recent AGM!

President Don VK4BY, Vice President Doug VK4DUG, Treasurer Nev VK4KNB, Secretary Clive VK4ACC, Assistant Sec. Incorporation. Lyle VK4ALD

The RADAR Club congratulates the persons responsible for the new and improved WIAQ Council minutes. Also a reminder that the Clairview Amateur Radio get together half way between Rocky and Mackay is on May Day weekend. (2nd May).

Someone within the RADAR Club will have been especially looking forward to the April meeting. Peter VK4VW as WIAQ contest manager, should have visited at the Frenchville Sports Club to present John VK4AJS with his trophy for the Jack Files Contest. Well done John.

Sunshine Coast Club; Ron VK4GZ was awarded the Ken Wilford CW Trophy at the April general meeting of SCARC.

The trophy is awarded annually, for the best cumulative score in contests using CW. As well, Ian VK4KIJ is the new Secretary of the club. He replaces Geoff VK4KEL who acted as temporary secretary until enough pressure could be applied to Ian.

(Must be something about running BBS's that qualify one as Club Secretary!)

Sunshine Coast's Repeater Group is in the last stages of siting a new repeater at Tewantin. This repeater will enhance repeater coverage to the north of Noosa, hopefully as far as Rainbow Beach and will be an asset to travellers as well as club members. More news on the repeater and frequencies as it comes to hand.

FNNQARG

This years Far North and North Queensland Amateur Radio Get Together will be held at Beachcomber Coconut Village, South Mission Beach, from Friday Afternoon 11th to Monday 14th June 1999.

You must attend the Far North and North Queensland Amateur Radio Get-together! (FNNQARG!) (FNNQARG - the sound the cassowary makes as it tries to swallow your hand-held!)

Obtain further information from:

Pat VK4MUY phone 07-4772 5760 packet VK4MUY @ 4RAT. #NQ.QLD.AUS.OC

Bob VK4WJ phone 07-4779 7869 email Robert.Mann @ jcu.edu.au

Gavin VK4ZZ phone 07-4779 1161 packet VK4ZZ @ VK4ZZ. #NQ.QLD.AUS.OC

email vk4zz @ ultra.net.au

Last but not least, it is farewell to our Federal Councillor Ross Marren VK4AMJ, who has pulled the pin after many years of service in that and other positions within the WIAQ. Ross has strived to maintain an even keel in some often rough waters.

We will strive to continue the high standard of devotion you have shown to the interests of the members of this Division. Thanks Ross from all on council and Queensland in general.

Enjoy your well earned 'retirement'.

Cheers, Alistair VK4FTL

QRM.

VK7 Notes

Our Annual Divisional Meeting and HamFest, held at Burnie on the 17 March was a howling success with a large number of Tasmanian Amateurs attending.

Business was brisk in the pre-loved stalls and also the Commercial exhibits with good results reported.

Many of the demonstrations ranging from packet, Internet to video conferencing kept the interest of the crowd.

The Annual meeting went smoothly, yours truly is the State President again (my last year) and Tony Bedelph VK7AX, is our new State Secretary.

His address is

5 Kywong Cresc,

Ulverstone, 7315.

Phone number (I hope?)- (03) 6425 2923.A list of all our other officers has been sent to each other division.

The annual dinner at night saw David, VK7ZDJ win the Icom R2 receiver kindly donated by the Tasmanian ICOM agents Marcom-Watson in Launceston. This firm has been a great friend of amateur radio in this State.

Members of our Southern branch in Hobart are having great fun with a weekly fox-hunt. A different "fox" each week ensures that some of the hides are real "stinkers" but the interesting part is the fact that each week seems to see different winners.

Novice and full-call classes start on 26 April in the South - run by VK7SW, Steve.

If anyone is visiting Flinders Island make sure you include a visit to our resident member Peter Blundstone, VK7ZPB. You would be welcomed.

Following the resignation of our Federal Councillor, Andrew, VK7GL, we have elected a worthy successor in the person of our Hon. Solicitor, Phil Corby, VK7ZAX. Phil's legal expertise could often be very welcome.

Cheers for now from Ron, VK7RN, Tasmanian President.

ar

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CLUB NEWS

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PO Box 2175 Caulfield Junction
VIC 3161

Port Macquarie Field Day

Field days seem to have become something of an institution over time and the fact that they have continued for so many years as important events in the amateur radio calendar says much about their popularity.

The Oxley Region Amateur Radio Club plans to hold its annual Field Day over the Queen's Birthday weekend, June 12th and 13th.

As in previous years, the venue will be right on the waterfront at the Sea Scouts' hall in Buller Street, Port Macquarie, NSW.

The program will start around 10.00am on Saturday and provides for 2m mobile and pedestrian foxhunts as will as a wide range of other activities for the whole family.

New amateur gear will be on display, supplied by both local and city dealers and it is significant that much of this current equipment embodies real state-of-the-art technology.

In addition and perhaps by contrast, a table will be provided for the sale of pre-loved gear, where a bargain or two can always be expected.

Sausage sizzles are planned for both days with drinks, tea and coffee also being available on site.

Since the Queen's Birthday is a holiday weekend and Port Macquarie is a very popular holiday venue, it is important to book early for both motel and caravan sites to avoid disappointment.

We look forward to enjoying the company of visiting amateurs who plan on spending the weekend with us in Port..

Alan Nutt VK2GD

Publicity Officer

For Oxley Region Amateur Radio Club

20 Amaroo Parade

Port Macquarie NSW 2444

Oxley Region Amateur Radio Club
Annual Field Day
Queen's Birthday weekend,
June 12th and 13th.

SCARC John Moyle Report

"The usual crew of adventurers arrived at the Sunday Creek fire tower around 11am. Conditions not too bad - a little drizzle - grass a little high, no problem - Out with the trusty brush cutter.

Then "Daddy daddy, look at the pretty worm. Why is my boot full of water?" That's not water; it's blood. AAAGH! LEECHES.

Not one, not one hundred but serious numbers of the horrible little fellows, all determined to suck the goodness from SCARC leaving broken men and dried out husks littering the land.

A quick council of war resulted in some of the most unscientific suggestions for the removal of leeches, liberally apply rum "internally" seemed the most popular followed closely by an old favourite; put salt on their tails.

The VHF-UHF group quickly stole a march on the low-banders, by the simple expedient of erecting 1/4 wave verticals fed by 10 cm(?) Heliax cable all over the fire tower.

"Get enough metal in the air and you can't go wrong" seemed to be the philosophy. It must have worked, since it caused close encounters with confused airforce F-111's all night.

Meanwhile, back at leech central, the lowfers were stumbling around trying to raise an 80m dipole. William Tell, aka Max VK4TXL, was spot on with the bow. Unfortunately the forest had the audacity to have grown 10m since last year. The conversation went something like:- "It went up ok last time", "do you think we could just bend that 10m wattle a little to the left?", short silence , "maybe we could hang it on that big radar reflector", horrified whimper, "you mean the big shiny thing on top of the hill?"

Eventually, antennas in the air, sleeping gear sorted, meals of monumental to indifferent quality cooked and eaten, thoughts turned to the social aspects of the hobby. "We should have a few drinks with those fellows camped under the radar reflector", "OK, but remember an early night is a very good thing". Gods don't destroy fools, they handle the job themselves.

10.30 pm local time, Sunday Creek fire tower. Altitude 7,000m (or there-about) Max, who has trekked Tibet, climbed K2 without oxygen or shoes and survived last year's John Moyle, wisely decides to go to bed. The rest of the crew, unaware of the danger, continue walking (sort of), trekking AND socialising.

11.15 pm local time. The first insidious symptoms of altitude sickness appear. Members of the club, normally the most sober of men, begin sharing strange recipes. Dark and stormy-rum and ginger beer ala what turns out to be the drink the ROCKY boys and girls will discover when they ride the tilt train to Bundy (TILT APTLY NAMED!) Tor Ro Red, toxic-metho and tomato sauce. Private school special — Stones Green Ginger wine and gin.

Time passes. The trek staggers on.

11.30 pm local time. The drinks become doubles; then multiples, then who measures?

Some members of the group begin, probably for the first time, to get in touch with the sensitive side of their natures. Ribald comments erupt from the terminal yobbo's in the group.

11.45 pm local time. The sensitive and the insensitive alike are becoming incoherent. Sitting like a rock in this turmoil is Wayne

If you have some club news to share.

Or an event to publicise.

this is the place.

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SWC. The man is immune to alcohol having spent his formative years growing cane on the slopes of Bli Bli.

11.47 pm local time. The first casualty. A member of the club, who shall remain nameless, succumbs to altitude sickness in a bad way, he is helped to the base camp by two of his less capable mates.

12.00 pm very local time. The rest of the group, sobered by the tragedy, conserve their energy and eventually make it to the summit.

Early next morning the whole camp was saddened to find the blood stained clothes of Max outside his tent. "Taken by leeches" was the only possible conclusion.

One of the V.H.F chaps remembered hearing the faint cry, DI DI DIT DI DI DI DIT DI DIT DAAAa-a-a-h some time in the night but had not thought to invèstigate. Pity he hadn't remembered SOS.

Now – what were we here for?

The contest was a little slow compared to previous years and the lowfers were handicaped by a lack of operators but in general it was an experience "not to be missed".

Would we do it again? Well, Maybe; Probably; - Ask us next year.

By Dave VK4TDL, President SCARC. (I told you it was a social event. Bob VK4KNH)Brisbane Amateur Radio Clubs

"BARCFest99"

BARCFest99 will be held on Saturday 8th May at Kelvin Grove High School auditorium commencing at 9.00 am.

For tables and display space bookings phone Dave 3288 4911 or write to BARCFest99 Co-ordinator PO Box 3007 Darra Qld.If your club wishes to participate in this event by means of a display or disposals table, please let Dave Prince know a.s.a.p. so that a table registration form can be sent.

Dave Prince VK4KDP
BARCFEST '99 Co-ordinator
davprin@gil.com.au

Special Interest Groups—Radio Scouting

JOTA v JOTI

Bayside District Amateur Radio Society at Brisbane experienced problems with JOTA last year.

After contacting the Scout Association of Australia we have received from the Branch Commissioner, Ian Lightbody a reply which more than suggests Baysides experiences were felt elsewhere, particularly in the Brisbane VK4 area.

In part Scouts Australia reply points out 3 problems with last years JOTA.

1 JOTI, Jamboree On The Internet is more accessible and reliable a form of communication than Amateur Radio. It has detracted a little from JOTA.

2 JOTA QUALITY, in some areas JOTA has been poorly run, to the detriment of the activity. Some hams just let Scouts look on similarly some Scout Groups have not treated radio operators well.

3 FINDING OPERATORS, numbers of willing hams seem to dwindle each year.

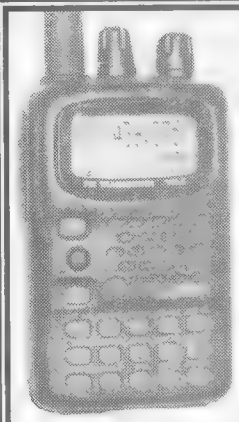
It's frustrating to see Karingal campsite set up with keen Amateurs and few Scouts.

Wheras at Baden-Powell Park, Samford (the state radio station) hundreds of Scouts, their own radio gear, but few operators. At times they closed operations due to a lack of Amateurs.

Ian concludes with an offer to convene a forum with keen JOTA people from across Brisbane!(QNEWS) **ar**

Club Secretaries please note

Your Club Events happening in June, July, August and September would benefit by exposure in these pages



Radio and
Communications
Incorporating AMATEUR RADIO ACTION and CB ACTION

Edited by
Chris Edmondson, VK3CE
Box 1 Yarra Road,
Wonga Park
Victoria 3115
(03) 9873 1777

At left is one quite remarkable hand-held transceiver. In fact, some would argue it's a scanner which talks. It covers almost everything from broadcast and shortwave up to a Gig! And it transmits on six, two and 70. We review the new **Yaesu VX-5R** for you this month. But that's not all...!

May's R&C is simply jammed with value for you! Here's just a selection of the great stories lined up and ready...

- SPECTRUM FOCUS: Welcome Roger Harrison, VK2ZRH, as he untangles the regulatory web. Are we safe?
- SWATCH BEATNIK: A happy story of how amateur radio operators could beat a commercial giant...
- THE PHILIPS FM900 SERIES: A somewhat belated review, but a review nonetheless. Have *you* got one?
- CHOOSING COAXIAL CABLE: A great yarn — written for us by a man who designs coax for a living...
- SIX METRES ON THE MOVE: Get it while it's hot! The six metre band is jumping. Grab the DX while you can!
- *As usual, we have our three DX columns, mods and lots more... the best stories and regulars every month!*

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(PS. We also have the biggest collection of radio-oriented Classified adverts in the country. There's lots of them because they *work* so well. Ask your newsagent to keep a copy for you each month, or ring 1800 25 2515 for subscription details. Hurry — you might *miss* something!)

vk3ce

ALARA

Christine Taylor VK5CTY
ALARA Publicity Officer
16 Fairmont Avenue, Black Forest SA 5035
Packet: VK5CTY@VK5TTY

ALARA ANNUAL GENERAL MEETING

Please don't forget that the fourth Monday in May is our AGM.
We meet on air on 80 metres. At 1030 Zulu on 3.85 MHz +/-.
Make this year another one to remember.
We always have a good roll-up for our AGM and it is lovely to hear all those callsigns we don't hear so often, as well as to hear the more regular ones.

A Special Crystal Set

The photos show (outside and inside) a crystal set entered by Dot VK2DB in the recent Crystal Set Competition run by the HADARC. You must admit it is different! It did work and was awarded the prize for the most amusing.

Dot didn't do the soldering for the crystal set - OM John VK2ZOI didn't trust her to!

However, she followed up the crystal set with a doorbell she made entirely herself (her two younger sons were very surprised to see Mum wielding a soldering iron, but it was 'old hat' to her elder sons, they used to see Mum soldering quite often, when they were younger).

The doorbell works but its external appearance is yet to be determined. It may end up looking like a volcano, or maybe a grandfather clock, or maybe a giraffe. The jury is still out. You will be kept informed.

More New Callsigns

One callsign that will be unfamiliar to us all at the AGM is VK3WX.
Robyn VK3ENX will be using her new callsign by then.
Robyn used to visit Bill's shack when she was just a little girl. When he died, recently, his daughter rang Robyn and offered her the use of the callsign.
She was honoured though she was sorry to hear that her original mentor had become SK.

A callsign heard on the 222 Net recently is a very new and hard-won call. Mai, previously VK5KYL, now VK5AM, has taken over a year and more than six attempts to make the upgrade.

It wasn't that she didn't know the code, she was just too nervous to write it down. Congratulations Mai, hope we hear you on a Monday night, sometime, too.

Some New (and new/Old) Callsigns Heard on Monday nights

It has been great to hear Elwyn VK2DLT back on the Monday Nets. Elwyn used to be a regular participant but due to other commitments has been missing for some years. Now she has more time we hear her quite frequently.

Now that daylight saving is over we are able to hear the VK6 girls much more easily. It has been good to have Poppy VK6YL, in particular, back with us again.

A completely new callsign heard several times recently is Nina VK2IEZ. Nina is only new to us. She is DL2GRC, back home in Germany and has also held the callsign 7J3AUS.

Nina was recruited into ALARA by Dot VK2DB, at the Gosford Field Day, which appears to have again been a very successful meeting.

Dot had Nancy Karas (who also helped her husband - never by nagging? - to enter a crystal set in the HADARC competition mentioned above) to help with the ALARA table and had visits from Val VK4VR and Ann VK4ANN.

She also enrolled Frances VK3HLF whom we hope to hear on the Monday Net when she upgrades.

DON'T FORGET JOTA AND JOTI 1

YOU ARE ALL INVOLVED

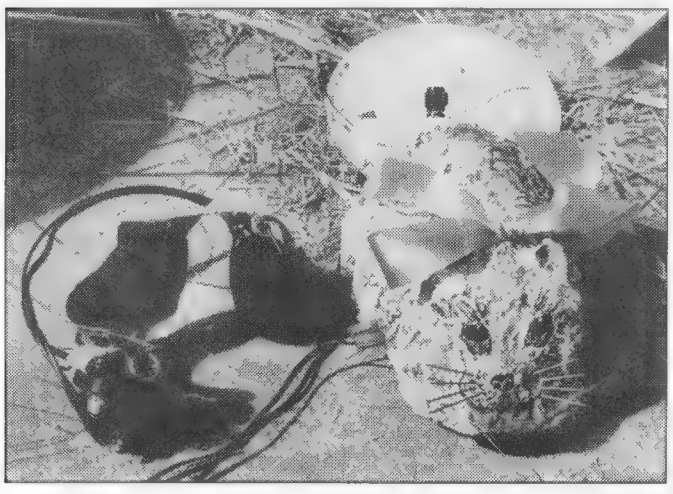
JOTA and JOTI will be here on the third weekend in October, but it is not too soon to be planning your participation.
Both the Scout and Guide groups and the amateurs need to have some preparation.

If you are involved with a Guide or Scout Group get them thinking about October, now. If your group already has an active radio group why not encourage them to take part in some of the Contests that allow Club participation? Remember VK5GGA has won the club section of the ALARA Contest twice.

I am sure Sharon Pariossien (the new coordinator in VK5) would like some competition. The ALARA contest is not the only one to welcome clubs. Look for this section in the Contest Rules.

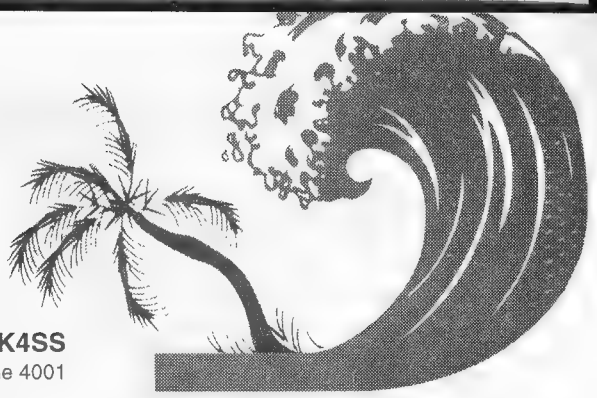
It is excellent practice for the boys and girls in preparation for JOTA.

All it needs is the use of your HF gear for a weekend, either at home or in their meeting hall



Is It Fate?

Or is it chance that flings the dice of survival across the board of each man's destiny??



Alan Shawsmith VK4SS
35 Whynot Street, West End Brisbane 4001

ONE CANNOT ACTIVELY spend a full lifetime in AR (in my case 64 years) without becoming involved in some way in a whole series of unexpected events.

A few that come to mind are; the big N.Z. 'Quake 1930's; L.D.E.'s (twice); the Danny Weil VP2VP Sea Drama; The Lady Elliott Lighthouse problem; the '*LA BALSA*' Raft Affair; the atomic bomb tests on Eniwetok Atoll 1948; the Brisbane Floods 1974 and the Solomon Islands Cyclone to mention a few.

My role in the Solomon Islands Cyclone was small in that only the life of one young girl was at stake but the brief affair was so bizarre and dicey it is worth repeating.

In autumn 1939 a cyclone in the Coral Sea was lashing the Solomon Islands. Nearly 2000 miles to the South, at dusk in Brisbane I was in my bedroom getting dressed for a date with my then girlfriend.

I was late and in a hurry, yet for some reason decided to have a quick listen to my little 30 watt rig — a small capricious act that was to help save a young girl's life.

QRN heaped upon more QRN that crashed into my eardrums. Not one signal was audible. Only a fool would call CQ into that I told myself and got up, leaving the receiver running.

I was pulling on my socks, when a faint signal became audible. Did I catch the word *BRISBANE?* I poured all my concentration into the headphones. There it was again "CQ CQ CQ BRISBANE URGENT DE VR4HR".

The morse was so weak I sat and waited for some other local to reply – but there was no one. It started up again, but weaker. I replied and was gratified to hear ROGER ROGER CFM. He then went straight into the text sending QRS and QSZ. 'SEVERE CYCLONE DAMAGE. ISOLATED. DAUGHTER DYING FEVER. MUST HAVE (certain type of) DRUG. URGENT URGENT. PHONE BRISBANE (Phone number given).

I stared in utter disbelief at the phone number. There must be an error. I replied with PSE RPT PHONE NO? He did so, but the signal was now getting weaker – fast.

Again, I went back 'PSE RPT?" Only a fading sound reached my straining ears, then silence except for the crashing QRN.

I stared again at the phone number. No; it couldn't be; not in a city like this. Was it a hoax? -a thought I quickly dismissed.

If I had copied wrongly then all was lost, but I could easily check. The number WAS THAT OF MY GIRLFRIEND.

I dialed her and the freakish truth was quickly revealed. She lived at her boss's house as as part of the family, which had a son on the Solomon Islands. They assured me that the drug would be sent by charter plane at the first flight clearance and from New Guinea if possible, as it was quicker, and would I continue to keep listening for HENRY, VR4HR.

News came later that the drug had arrived and VR4HR's daughter was improving.

I never heard him on air again, but did 'eyeball' in Brisbane, just prior to WW2 and prior to enlisting. Over a couple of beers Henry recounted to me the devastation wrought by the wind and rain on that terrible night when his daughter lay delirious and comatose, cut off from all medical aid.

He told me:-

"After the telephone went dead and all the power generators supplying the plantation failed, I turned desperately to a little 5 watt homebrewed rig, discarded in a cupboard because its batteries needed replacing.

"They were re-connected and to my surprise the rig worked. I had to use a rough rundown wire antenna belonging to the MW Broadcast Set. I called about half a dozen times and was about to quit in despair as the rig's output was failing, when I heard your reply".

The rest is simply a small episode in the long history of rescues by Amateur Radio.

We parted, promising to 'eyeball' as soon as the WW2 enemy had been 'put down'.

The rendezvouz was never to be.

VR4HR's dice of survival was flung once more across his board of destiny, but this time fate or chance chose to look the other way.

ar

ALARA *continues*

A VERY BUSY LADY FROM VK3

Each year the District of Heywood chooses a Citizen of the Year.

This year, 1999, the honour has been given to Joy Savill.

Joy is Secretary of the Hamilton and District Radio Club a task that she combines with her long time interest in Guiding.

She holds a Victorian State appointment as Guide Radio Activities Co-ordinator.

In this capacity she is responsible for coordinating information for all Victorian Guides to enable them to take part in JOTA (Jamboree on the air) or JOTI (Jamboree on the Internet) on the third weekend in October.

After the event Joy collates all the reports from the participating guide groups for the National Radio Coordinator.

During her time as District Guide Leader the local Guides won an Australia wide prize of $2000 (the Dettol Service Challenge).

The Prize was used to furnish the Respite Room at the Fitzroy Lodge retirement village.

Their project was a Recycling survey they performed in association with the Heywood Shire Council.

Joy's involvement in the local district no doubt influenced the choice of activity but it must have meant a great deal of hard work and time from many young people.

Winning the prize and the use to which it was put will be remembered for many years to come.

These activities are only a few of the many in which Joy is involved.

Others included 7 years working for Meals on Wheels, serving as Secretary for several tourist oriented organisations in the Heywood area, and a number of Carer groups as well as being active in Art and Craft groups.

She is also the Western Border Towards 2000 representative.

Our congratulations to you Joy, Heywood's Citizen of the Year.

ar

A Tower of Strength

(THE VK4VKD ONE MAN TOWER REVISITED)

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Browns Plains QLD 4118
Home page http://www.powerup.com.au/~vk4vkd

IN 1985 I DECIDED TO DESIGN and build an antenna tower. I chose this course of action, rather than going with one of the existing designs as a result of being involved in helping friends, and their friends, put towers up on their properties. Some of the hurdles that had to be overcome and some of the "near misses" that came about during those efforts left a large scope for improvement.

Transport was usually the first problem encountered. Some structures were rather unwieldy large towers that had possibly been windmill towers. Others were long telescopic crank-up and tilt-over types.

All had one common characteristic. They weren't easy to get into position and once there required the services of a crane or an army of helpers to get the blasted things up.

I wouldn't have contemplated putting some of them at my own house, as they were unsightly. Some I considered simply unsafe both in design and construction.

Thousands of ideas were considered. Some aspects of existing structures were thought to be practical and with a few small improvements were useable.

I had sketches of design ideas everywhere. Every scrap of paper seemed to have an idea scribbled on it and I found that even though something looked great on paper it wouldn't always work in practice. That's par for the course; by rejecting the inferior designs we finally come to a product that is worth all of the blood and sweat to construct and erect. So was born the "one man tower".

I made my prototype and wrote a small article that was published in October 1986.

Then came the biggest shock of my life. Even though I was staggered by the construction costs, I was absolutely overwhelmed by the response to that article.

The letters just poured in, thousands of people had read the article and wanted one of these towers. There were letters from every corner of VK, ZL, Japan, USA and various Pacific Islands.

I realised that I was expending a considerable amount of money on photocopying plans and posting them to people. Some had included return postage, but sadly many had not.

To make matters worse I now received phone calls at all hours from people with their plans but unsure about various aspects of construction etc. This became an incredible burden. I was working a full-time job and in my spare time was making towers for people unable to build their own.

I didn't want my hobby to become a burden so the tower making came to an halt and I carried on with my life, turning a deaf ear to requests to "Please build me a tower".

The years have mellowed me and, being semi-retired, I have yielded to the prompting of friends to don the welding helmet and "Knock up a few towers". "What the heck, I thought," I need something to do when it's no good for fishing or there's no propagation." I had a look at my present circumstances. Things have progressed in regard to technology, computers, and video cameras. All things combined, today it is so much better than 13 years ago, so I decided to build a tower and make a video of the whole procedure. That way, if anyone wanted to make a tower, all they needed to do was to buy a tape.

E-mail and the Internet would save a fortune in postage. I thought, all things considered, a lot more information can be put on video and e-mail would be a lot better than having the phone ringing day and night. So I put my head down and my

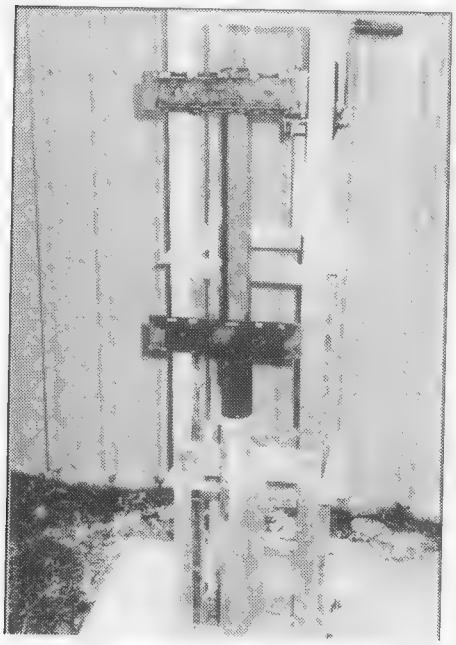

Photo 1 The first section is positioned and bolted to the base. The winch and slide-carriage are fitted and the "self erecting jig" is mounted to the carriage.

Photo 2 Sections are brought into position. Note the dolly wheels clamped to the section. This makes moving the sections a breeze.

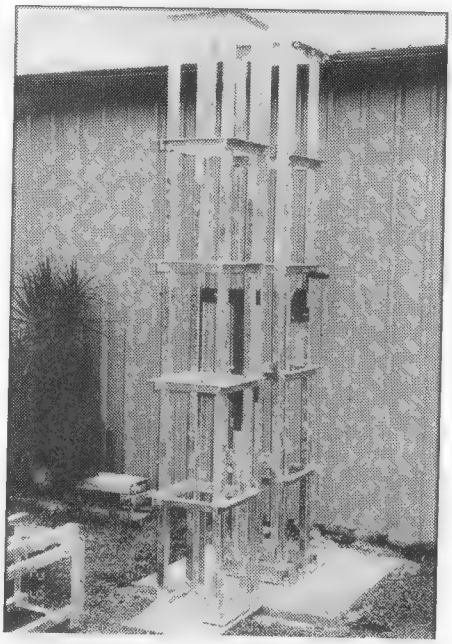

Photo 3 Each section is stood up and clamped to the jig.

other end up and started building the "One Man Tower" again.

The "One Man Tower" has benefited by the advances in metallurgy that have taken place over the interim period between the prototype and the current version.

The new version, Mark III if you like, makes full use of new steel grades like "Dual Grade" (TM). This is a 350/450MPa grade that gives the strength of 450MPa grade with the weldability of 350Mpa. The result is a stronger structure with the same weight and dimensions as with the lower grade steel.

When costs are counted this improves the dollar value. I was surprised to find the parity level between now and 1985 shows that the increases in steel prices haven't been as sharp as a lot of other commodities.

Other changes included reducing the modules to 2.5 metres in length giving a better handling and shipping package. Some Municipalities allow towers not exceeding 10 metres to be installed without a permit (be warned, that may have changed by the time this article is published). The 4 x 2.5 metre sections fill the bill nicely.

The slide carriage and self erection jig have had major design improvements and are much more compact and user friendly.

The set-up that you see in the photos tips the scales at 45kg and has no bearing on the overall wind loading of the tower.

The design allows the antenna to be lowered to ground level very quickly thereby removing the loading from the top of the tower during severe storms.

Wind Loading

The 2.5 metre modules are each subjected to 99.5kg of horizontal force at 160kph-wind velocity. Bringing the slide carriage and antenna down to ground level reduces wind forces on the tower and reduces the tipping moment of the tower. A total height of 17.5m (including antenna) is reducible to 10m in a few moments, with the antenna at ground level. So you can see the benefit of the design for safety in bad weather.

Gone are the risks associated with climbing up to make adjustments to antennas, or changing antenna arrays, and you don't require a tennis court size area to tilt the structure over.

As I said earlier, I have a VHS video available for $30 (inc postage and handling within Australia) showing the jigs used to construct the modules and how easily the tower is erected by one person.

You can contact me by e-mail or write to me at address under the title. If you do not have facilities to make a tower for yourself, I could be tempted to make one for you.

For more information
or
to purchase the video contact

Kevin Peacock VK4VKD
PO Box 1013
Browns Plains QLD 4118
Home page
http://www.powerup.com.au/~vk4vkd

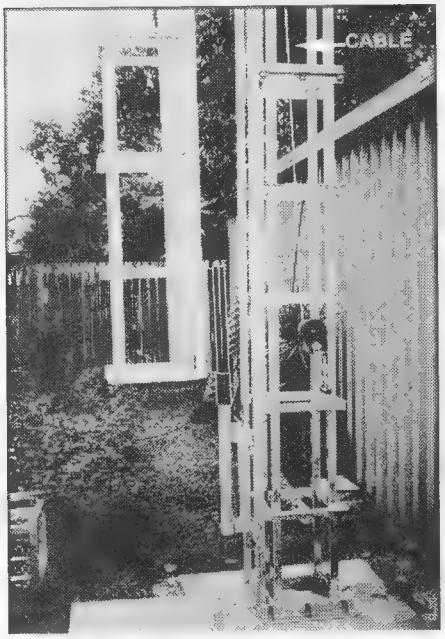

Photo 4 The builder operates the winch to raise each section into position.

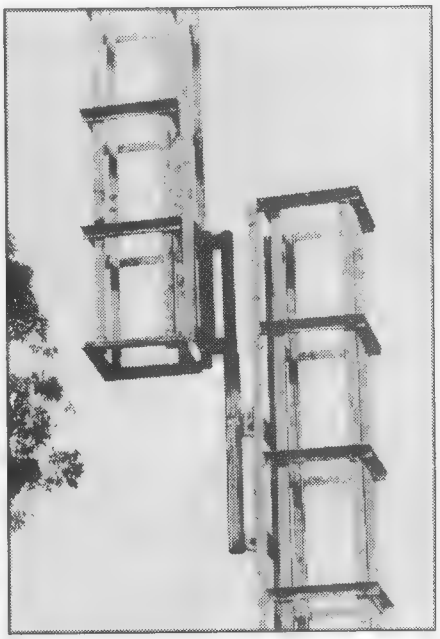

Photo 5 Almost into position. There is no great effort as the sections weigh a mere 65kg and the winch has a mechanical advantage of 3:1.

Photo 6 As each section reaches its final height, it is simply turned 180° and bolted onto the previous section.

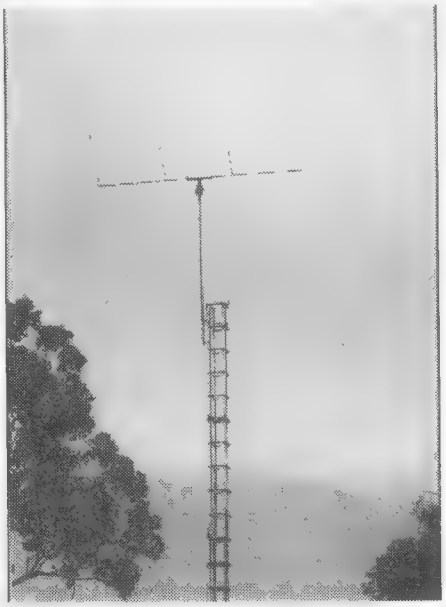

Photo 7 The tower,with a 4 element Delta Loop, stands 17.5m to the top of the antenna but has a tower height of just 12.5m.

Safety Note:

Towers of substantial height and/or weight should be designed by a qualified engineer and may require Local Authority approval before erection begins. Consult your local authority for the appropriate regulations.

Your Insurance Policy may not cover damages or injury resulting from failure of a tower or falling from a tower. Again, consult your Insurance broker for advice.

Amateur Radio on the Web

If you are in the market for a new piece of equipment then the web is the first place to look.

By Bob Harper VK4KNH
PO Box 288 Beerwah 4519
bobharper@bigpond.com

WHEN YOU THINK of how many Amateurs there are in the world and of course how many businesses feed on the hobby, it should come as no surprise to learn that there are a great many internet sites devoted to Amateur Radio.

If the amateur is in the market for a new piece of equipment then the web is, in my opinion, the first place to look. You will find out what the latest equipment is and what the specifications are without having to tell the salesperson "I'm just looking."

Be aware though that many of the sites are in the US and the same models may not become available here for some time (if at all). You can browse sources of components that are rare here in Australia and even join Surplus Equipment Sites that will email you if your particular item has just become available, eg marine CW keys!

I don't intend printing the web site contents here but thought that members might appreciate a few Internet addresses to set them off.

Note that the order is 'as found' rather than any preferential order.

http://www.tentec.com	TenTec transceiver range, upgrades and software.
http://www.icom.com	Full range current & new releases.
http://www.icom.net.au	Australian Icom site.
http://www.icomamerica.com	US Icom site.
http://www.icom.co.jp	Icom Japan.
http://www.outbacker.com.au	Terlin Antennas, see AR ad .
http://www.maha-comm.com	Replacement Batteries for HTs.
http://www.arrl.com/	A very extensive site. Check out the
http://www.arrl.com/catalog/	bookshop!
http://www.alinco.com	Online manuals and updates. Subscribe to their e-mail newsletter.
http://www.adi-radio.com	ADI manufacture H/helds for 6m, 2m and 70cm as well as commercial sets.
http://www.ameritron.com	Ameritron Linear Amplifiers, Parts and Manuals
http://www.yaesu.com	News, products and more. Good site worth a look.
http://www.hamtronics.com	Plenty of repeater bits - exciters, front ends, etc.
http://www.vectronics.com	Electronic kits.
http://www.altronics.com	Security products - NOT our own Australian Altronics.
http://www.mfjenterprises.com	Full catalog: can be printed off
http://www.universal-radio.com	Lots of goodies. SWL and QRP equipment, books and CDs.
http://www.surplussales.com	From tubes to GPS Rx; Collins parts. A hamfest on the web.
http://www.k-comfilters.com	All sorts of communications filters.
http://www.associatedradio.com	Buy and sell all manner of radios from antique to new.
http://www.elenco.com/cs_sales	Test equipment. Sams range of books.
http://home1.gte.net/k4lk/mcc	Repeater controllers inc.ATV controllers.
http://www.mirageamp.com	A range of antennas and amplifiers.
http://www.tigertronics.com	Radio Modems including Baycom.
http://www.scs-ptc.com	Pactor digital communications. Pactor II modem, photos and data.
http://www.jps.com	DSP products. Digital noise reduction systems.
http://www.lentinicomm.com	A large range of AR products with an online catalog.
http://www.communication-concepts.com	. ATV down converters and UHF components inc. mica trimmers.
http://www.aesham.com	A large range of AR products for selection online.
http://www.glenmartin.com	Towers of almost all types including a trailer mounted telescopic tower!
http://www.mouser.com	Extensive product range - download their catalog,all 23Mb of it!
http://www.allcorp.com	Another AR supplier with an extensive range.
http://www.rfparts.com	Worth a visit. Extensive range parts, users & service manuals. silver mica caps, doorknob caps, metal case mica, chip caps, large and small air gap tuning/trim caps, tubes, bases and chimneys. RF home brewers should visit but wear a bib.
http://www.emsci.com	This is very impressive electro-magnetic design software. Hobby and prof. versions available. ie Design your own antennas.
http://www.hamstation.com	New and used ham gear.
http://www.connectsystems.com	Various types of repeater controllers.
http://www.prodintl.com	A wide range of test equipment from various manufacturers.
http://www.iacantennas.com/	"Home of the Double Bazooka" I didn't read it but it looked interesting.
http://www.radioera.com	The history of radio! Books, manuals and schematics on early radio & programs. Early test equipment schematics on as well!
http://randl.com	One of the many AR stores on web
http://www.wb2jkj.org	WB2JKJ is a School radio club in New York. Look in and consider a similar setup with your local high school.
http://www.com-spec.com	A range of CTCSS decoders, telemetry equip. & auto-Morse identifiers.
http://www.qth.com/prolog	An amateur radio logging program with a downloadable demo.
http://www2.wcoil.com/~fairadio	Surplus military and industrial equipment inc. test gear, books etc.
http://www.cablexperts.com	Anything to do with cable including 300/450 Ohm Ladder line.
http://www.hosenose.com	A little confused on this one but I note the Amateur Radio Callbook.
http://www.rust.net/~hires	Kits & bits for Collins gear, peak reading conversions for power meters.
http://www.seintl.com	A range of EMF radiation monitors including a pocket device to warn when your RF is getting you!

http://qth.com/wx9x	WX9X do QSL cards by the thousand.
http://www.davisrf.com	Davis sell mostly cable and cable accessories.
http://www.juns.com	A ham store carrying a fairly standard range of products.
http://www.hamstick.com	Hamstick sell a large range of antennas, many types & makes.
http://members.aol.com/viconqsl	These guys print your photographs as QSL cards in various styles. They also make business cards that they call "Eyeball" cards.
http://www.radioworks.com	A range of wire antennas including the "Carolina Windom"
http://www.torontosurplus.com	Inc. Harrier Jump Jets !
http://www.icc107.com	A Components supply house inc. 150 Ohm headset speakers.
http://www.ameritech.net/users/hamsure/hamsure.html	Amateur Radio Insurance.
http://www.cq2k.com	The site for a "different" Morse Code training system.
http://www.phillips-tech.com	Not to be confused with "PHILIPS", they sell RF equipment sales.
http://www.erols.com/pvander	Amateur radio logging program (for Windows) inc. demo version.
http://www.oro.net/~w9gr/	They sell DSP products but include a great number of Amateur Radio links (to other Web sites).
http://www.peetbros.com	Weather monitoring equipment including Home Met. Stations.
http://www.qth.com/cweasy	An interesting concept -learn CW by hypnosis. That's why I'm still technician class -I fall asleep half way through the test.
http://www.thewiremnan.com	That he is; cable and accessories including dipole centre insulators.
http://www.primenet.com/~bmyers	He has a nice range of vertical antennas.
http://www.rossdist.com	Another AR shop but with a range of AR links to other sites.
http://wwassociates.com	They supply replacement battery packs for a wide range of equipment including HTs.
http://www.teletec-usa.com	This site is advertised but the opening message was "Access Forbidden"!
http://www.burghardt-amateur.com	They have been selling to amateurs since 1937. Nice to see traditional businesses on the web.
http://www.kachina-az.com	A very nice looking HF transceiver with no front panel. You connect it to your PC. I have requested more information, which may form the basis of an article for AR in the future.
http://www.bencher.com	The CW key manufacturer, who also make photographic equipment.
http://www.warrengregoire.com	Headsets for Aviation as well as AR and general use.
http://www.kenwood.net	The Kenwood showroom where you'll find current as well as new products. ftp://ftp.kenwood.net Kenwood file & software directory.
http://www.cushcraft.com	Antenna people with a downloadable catalog, nice gallery of pictures and stories on their antennas around the world; in fact from pole to pole.
http://www.kantronics.com	Kantronics supply a range of AR as well as "Wireless" Modems for various digital modes.
http://www.vibroplex.com	The CW Bug maker older than Amateur Radio. All current products as well as assembly drawings and adjustment notes.
http://www.texasbugcatcher.com	Mobile antenna systems.
http://www.optoelectronics.com	A range of frequency counters inc. tiny handheld units.
http://www.hamradio.com	Yet another AR supplier with a large range of product on an online catalog.
http://www.halcomm.com	Halcomm produce a range of digital communications equip. Packet?
http://www.svetlana.com	Svetlana have been producing valve/ tube products in St. Petersburg, for 100 years. Products now available in the west.
http://www.coaxial.com	Coaxial produce a range of transmission line test equipment but the smallest connection size I saw was for 7/8" Heliax!
http://www.synctime.com	A clock of interest to any ham; it automatically sets itself and keeps in adjustment, to the second, via WWVB. They make wrist watches that never need setting. They can't be set!
http://www.elecdist.com	A range of test equipment including AOR and Daiwa.
http://www.caig.com	Caig produce environmentally friendly chemical products such as contact cleaners as well as a range of plastic welding products.
http://www.palstarinc.com	You will find a range of antenna tuners/matchers, power meters, dummy loads, roller inductors and air gap tuning capacitors.
http://www.gapantenna.com	I like their motto "No Traps Here". A variety of vertical antennas that have no traps and therefore have lower losses. "More antenna, less resistor."
http://www.minicircuits.com	They will have to change their name to Microcircuits or even Nanocircuits. A wide range of RF components from attenuators to amplifiers, from mixers to splitters/combiners. Check it out.
http://www.zeta.org.au/richardm/	I e-mail Richard occasionally but didn't know much about him until visted his site. Drop in and find out what he likes. Has links to other Australian sites and keeps AR materials online for Australian Amateurs to see.
http://www.effect.net.au/waldis	Another amateur personality willing to tell all about his life and hobbies. Good friendly reading and you can book a QSO if you wish.
http://www.eudoramail.com	Many amateurs don't have the web at home. But they can have an email address. Eudoramail (and others) offer free e-mail addresses you can use from shared computers at work, local libraries and schools.

Now I trust that I won't be blamed for keeping people from working DX and I know that there are many more sites of interest to Amateurs out there.

I have even found a lot of local ones since originally writing this. Maybe there is sufficient interest for a permanent column on World-Wide Radio Web Sites!

If there are any volunteers to write it, please contact me? Shadetree Publishing - Bob Harper (07) 5494 0471.

ar

AWARDS

John Kelleher VK3DP
Federal Awards Officer
4 Brook Crescent, Box Hill South, Vic 3128
(03) 9889 8393

Conditions seem to be slowly improving.
I have noticed that some days we enjoy really terrific propagation, followed by two or three days of medium to relatively poor conditions. Again followed by a day or so of top conditions.

LAST WEEK I ENJOYED 59 SIGNALS both ways into USA and Europe. So, it seems we have periods of short and long skip. To take advantage of such conditions, show some interest in Contests coming up this month. On May 8-9 we have the CQ-M International Contest utilising CW/SSB and SSTV.

May 29/30 is the ever-popular CQ WW WPX Contest (CW version). In fact, have a go at any contest that is going.

Philippines DU-PX Award

Provide evidence of having contact with 15 different Philippine prefixes. SWL OK. No time, band, or mode limitations. GCR list and fee of US$5.00 or 10 IRCs to :-

Robin U Go DU9RG
P.O. Box 125
Cotabato City Philippines.

Scotland - Worked All Scottish Regions (WASR)

Contact one station in each of the Scottish Regions. Borders (BDS) Central (CTR) Dumfries and Galloway (DGL) Fife (FFE) Grampain (GRN) Highland or Islands (HLD) Lothian (LTH) Strathclyde (SCD) and Tayside (TYS).

Contacts since 1st May 1975. SWL OK. A QSO with GM3BSQ may be used to substitute for one region. GCR list and a fee of US$2.00 or 10 IRCs to :-

Sutherland GM4BKV
Aberdeen ARS
Greenfern Road.
Mastrick, Aberdeen
Scotland AB2 6TP

Sri Lanka Work 10 Sri Lanka Award.

Work 10 4S7 Stations. No time, band or mode restrictions. GCR list and 10 IRCs or equivalent to:-

Secretary Radio Society of Sri Lanka
P.O. Box 907
Colombo Sri Lanka.

Sweden Worked All Sweden Award (WASA)

Contact Swedish counties (laens) and call sign districts as follows:-

Class	Europeans need	All others need.
HF		
3	All laens on 2 bands	All districts 0 to 7
2	All laens on 3 bands	All laens
1	All laens on 4 bands	All laens on 2 bands.
Shield	All laens on 5 bands	All laens on 5 bands.

Stickers available for 2 x CW, 2 x Phone, and 2 x Rtty. The fee for each diploma is SEK 30, 10 IRCs or US$5.00. The Swedish Laens are :

A : Stockholm City
B : Stockholms
C : Uppsala
D : Sodermanlands
E : Ostergotlands
F : Jonkopings
G : Kronobergs
H : Kalmar
I : Gotlands
K : Blekinge
L : Kristianstads
M : Malmohaus
N : Hallands
O : Goteborgs and Bohus
P : Alvsborgs
R : Skaraborgs
S : Varmlands
T : Orebro
U : Vastmanlands
W : Kopparbergs
X : Gavleborgs
Y : Vasternorrlands
Z : Jamtlands
AC : Vasterbottens
BD : Norrbottens

Heard All Sweden Award (HASA)

Available under the same conditions as WASA, but for SWL's only.
No shields will be awarded.

Switzerland The Helvetia Award

Confirm contact with all 26 Cantons and half-cantons since 1st January 1979.
This is a beautiful multi-coloured award showing the flags of each canton on its border.
Issued in four categories :

(1) Phone,cw or mixed
(2 All cw
(3) Rtty
(4) Sstv.

Separate awards for HF and any single VHF/UHF/Microwave bands. Cards must be sent together with QSO information to the sponsor.
The award is free, but sufficient IRCs must be sent to cover the cost of returning your cards. The HF manager is:-
Kurt Bindschedler HB9MX
Strahleggweg 28,
8400 Winterthur
Switzerland.

Manager for VHF/UHF is
Rudolf W Heuberger HB9PQX
Buchserstrass 7
CH-5034 Suhr Switzerland.
Now follows a list of Swiss Cantons.

AG : Aargau
AI : Appenzell inner Rhoden
AR : Appenzell outer Rhoden
BE : Berne
BL : Basle Country
BS : Basle City
FR : Fribourg
GE : Geneva
GL : Glaris
GR : Grisons
JU : Jura
LU : Lucerne
NE : Neuchatel
NW: Nidwalden
OW: Obwalden
SG : St. Gall
SH : Schaffhausen
SO : Solothurn
SZ : Schwyz
TG : Thurgau
TI : Ticino
UR : Uri
VD : Vaud
VS : Valais
ZG : Zug
ZH : Zurich

Good hunting,
best 73 de John, VK3DP

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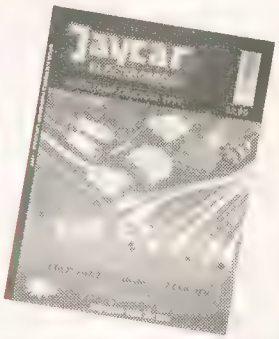

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GORE HILL	188 Pacific Hwy. (02) 9439 4799
RHODES	8 Leeds St. (02) 9743 5222
CANBERRA	121 Wollongong St. Fyshwick. (02) 6239 1801
NEWCASTLE	990 Hunter St. (02) 4965 3799
HOBART	140 Campbell St. (03) 6231 5877
ADELAIDE SA	191-195 Wright St. (08) 8231 7355
PERTH WA	326 Newcastle St. Northbridge. (08) 9328 8252
BURANDA QLD	144 Logan Rd. (07) 3393 0777
ASPLEY QLD	1322 Gympie Rd. (07) 3863 0099
MELBOURNE CITY	2, 45 A'Beckett St. (03) 9663 2030
COBURG VIC	266 Sydney Rd. (03) 9384 1811
RINGWOOD VIC	141A Maroondah Hwy. (03) 9870 9053
SPRINGVALE VIC	887-889 Springvale Rd Mulgrave. (03) 9547 1022
NEW ZEALAND	14A Gillies Ave. New Market Auckland. (09) 529 9916

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Concord NSW 2137. Fax (02) 9743 2066
AR APRIL 99

Name: _____

Address: _____

Suburb: _____ State: _____

Postcode: _____ Phone: _____

APRS Enters the 1998 Sun Herald City to Surf Race

Darryl Smith, VK2TDS
Vk2tds@ozemail.com.au

COMING HOME ONE SUNDAY afternoon, I found a curious message on my answering machine.

Kevin Dawson,VK2CKD had left a cryptic message about the Sydney City to Surf Run mentioning something about going in it. On returning the call I was told that we had just got permission to use APRS in the race, placing a 'tracker' on the lead vehicle. What I did not expect was that by that time next week the race would be over?

With fear and trepidation I told the WICEN team that I was prepared. After all I presented talks on APRS to about 15 groups over the previous 6 months. How could I not be ready?

Recently I had been preparing, hoping an event such as this would come up. I had been putting the equipment I would need together. I had enough equipment to be able to track two vehicles, set up a repeater and be able to monitor the signal on my Laptop, (The equipment I used is listed in the box).

In any events of this type there was no guarantee of any external power, everything had to run from battery power.

I also needed maps for the area. This was both easier and harder than it sounds. Maps are available from public domain sources, but needed to be digitised and calibrated for use. Luckily I had already done some work with AutoCad Lite and Visual Basic, allowing me to simply get the maps out.

On race day, I was up early for the drive into Sydney, in much better weather than when Sydney had a 1 in 100 year storm.

When people were assigned to stations, APRS was left out and I had to scrounge for personnel. Thankfully, Michael Roll, a newer unlicensed member of the Waverly Club was prepared to help me. He would travel with my mobile transmitter in the start vehicle to simply turn it off if anything went wrong. Michael was given a UHF scanner and mobile phone for contact. (For those wondering if this is legal, the answer is yes. The station had no controls other than an external power switch. Clearly comes under the definition of an unattended packet station, even if it is mobile!)

On the way to dropping him at the start, we dropped the digi-peater at the repeater site, a water tower in Vaucluse. Not wanting to see how the people setting up were going to lift the car battery for the repeater up the ladders I left them to it.

Then Mike and I went to the Start Line where the lead vehicle was stationed. Once we got there the driver knew nothing about us or our equipment. Some quick talking got the equipment loaded onto the 4-wheel drive. That was after telling them how APRS got into the Atlanta Olympic Games.

I dropped off Mike then went to the finish line to set up the receiver. There were a few hassles here. The first was attempting to get the TNC to receive any packets. This was solved by juggling the modular connections on the radio and the TNC. The other problem was a bit harder to fix – attaching the antenna to the equipment shed. Duct tape to the rescue.

I was set up, the race had just started – but I was not getting packets. I heard them through the repeater but was not decoding them. The packets were mainly the heading data rather than position data from the GPS. This made all the transmissions for the first half of the race useless.

At the time I thought there was a problem but it was actually working as designed. Basically I was not experienced enough neither with the program nor with APRS.

I was only sending packets every minute. A more appropriate timing would have been 10-20 seconds. I'll do this in future.

Although there was little to show because of the update times, the organisers were impressed with the concept. The idea of being able to have an icon move across the screen automatically with the runner is a great idea for this type of event.

Next year we might even have live coverage on to the Internet, and maybe even have the image broadcast on TV. **ar**

TRACKER IN THE START VEHICLE

The tracker in the start vehicle consisted of a 25 Watt Yaesu FT-230R 2M transmitter, Tiny-2 TNC updated EPROMs, a mag mount Garmin GPS-30PC GPS, a mag mount 2m antenna and 7AH gel-cell batteries. The transmitter, TNC and one battery were in a Laptop bag. The other two batteries were in an old UPS case.

Digipeater

The digipeater consisted of an old PK-88 with pre-APRS and pre-GPS EPROMs, a 2 channel Motorola 2m 25 W radio and a car battery. The antenna was a 1/4 wave vertical made from RG-213 co-ax inside a 16mm conduit.

Receiver

The receiver consisted of a Kenwood TM-251 mobile, receiving only, a PicoPacket TNC, 25A power supply with 1.2AH of gel cells, connected to a NEC Laptop (colour, 100MHz 586). The antenna was the same design as the digipeater.

APRS in the 1996 Atlanta Olympics

APRS was used at 1996 Atlanta Olympics during the marathon and cycling races to track the competitors – or the TV cameras near the competitors. APRS was never intended for use on TV. It was just there to assist with camera and helicopter positioning. However, when the TV producers saw the results, they started using it rather than attempting to read street signs from the video camera footage.

What is APRS?

APRS is technology for tracking objects such as cars and people using 1200 bps packet radio. It works by broadcasting information received from Global Positioning System (GPS) receivers to stations nearby. Wide Area Digipeaters then broadcast the information even wider.

Stations receiving the information with the APRS software have the locations of the object automatically appear on screen. Digital maps allow users to see what the area around the station is like.

The latest in APRS is the Mic-Encoder or MIC-E. It compresses the APRS position report into a packet that is only 200-300 mSec long, and broadcasts this at the end of an over on voice repeaters. Find more information on APRS use on the Internet.

http://www.aprs.org http://www.aprs.net
http://www.tapr.org
http://www.ozemail.com.au/~vk2tds

The last site contains information on APRS in Australia and also details on the Australian APRS Internet mailing list.

You may also get more information by contacting Darryl Smith, VK2TDS through his email address –

VK2TDS@ozemail.com.au

Darryl Smith is a 27 year old Electrical Engineer with Pacific Power working in IT and drawing management.
He received his licence in 1993 after becoming interested in Packet Radio.
Since then he had built 3 complete TNCs from bare boards, designed and built a 4 port TNC, implemented software for it under Linux and presented the design at the 1997 ARRL/TAPR digital communications conference in Baltimore, MD.
Darryl is now actively promoting APRS as a technology to save amateur radio in the Internet age. He is also on the WIA Sydney 2000 committee.
He may be contacted by email at VK2TDS@ozemail.com.au
or via post at
PO Box 169, INGLEBURN, NSW, 2565.

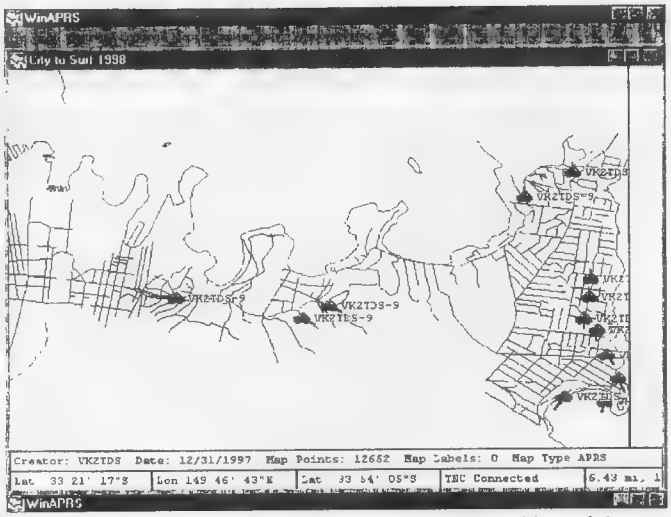


Fig.1: Screen shot of WinAPRS showing the position of the car at various places in the race.

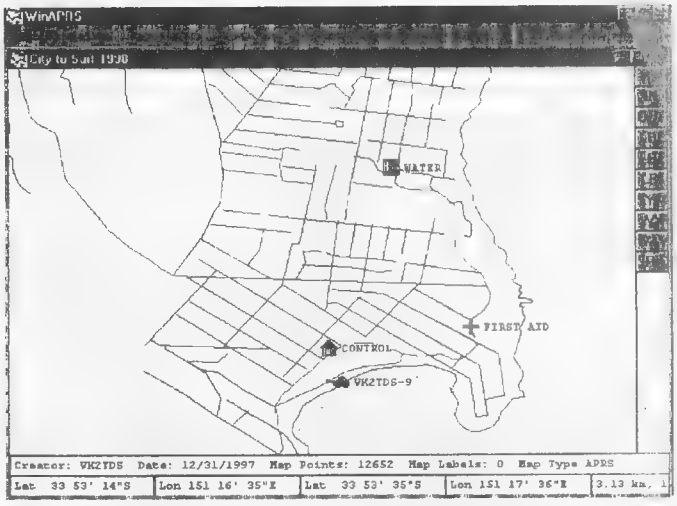


Fig.4: The end of the race showing the location of the operations centre, water and first - aid stations.

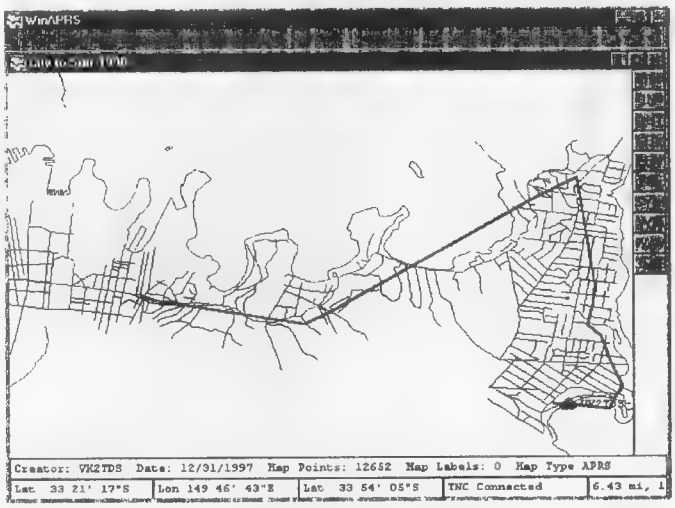

WinAPRS
City to Surf 1998
Creator: VK2TDS Date: 12/31/1997 Map Points: 12652 Map Labels: 0 Map Type APRS
Lat 33 21' 17"S
Lon 149 46' 43"E
Lat 33 54' 05"S
TNC Connected
6.43 mi, 1

Fig.2 : Screen shot of WinAPRS showing the TRACK of the lead car with only the last icon shown. Course is interpolated between position reports.

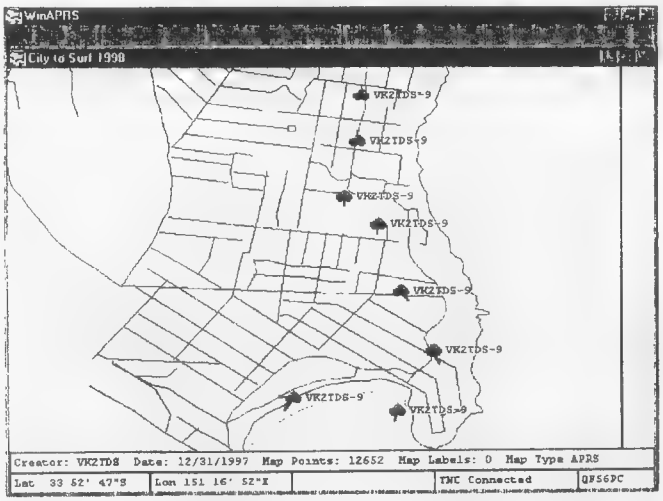


Fig.3: Close up of the end of the race with a large number of position reports. Each icon is 1 minute apart.

The Author in at the finish

Radio Reminiscences

Australia/US search for ETs

Jim Davis VK7OW
ALARA Publicity Officer
15 James Street
Latrobe Tasmania 7307

DR GROTE REBER BUILT THE FIRST PARABOLIC Dish in USA, at Wheaton, Illinois, in 1935. This dish is preserved in a museum in Ill.

Dr Reber was a brilliant Electronics Engineer (and Radio Amateur) and during WW2 spent some time in the NRL (Naval Research Lab) in Washington DC dealing with Radar.

About 20 years ago, he left the USA to find a suitable location to set up a huge antenna system to listen to signals from Outer Space on around 1.5 MHz. A location in Hawaii proved to be unsuitable, so he finally came to Tasmania where he found an ideal site in the Midlands sheep country. He leased 400 acres on a sheep station that was virtually surrounded by hills, like a huge saucer.

There he set up his huge Antenna system that consisted of 120 phased dipoles on 80 foot poles- obtained from a nearby forest. His Radio Shack was situated in the center of this property, and the antennas radiated in all directions like the spokes on a wheel.

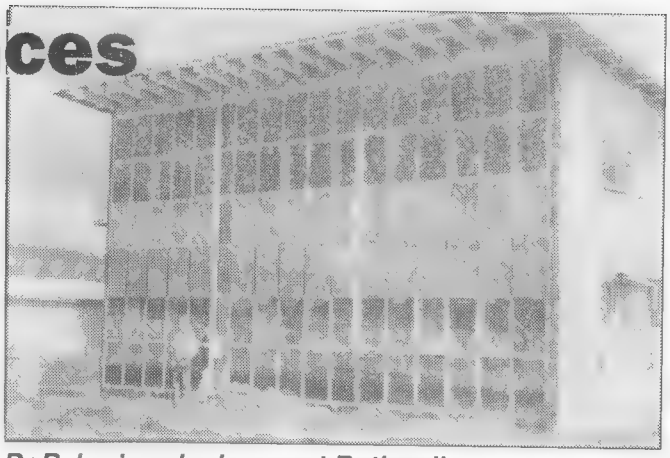
Dr Reber had a platform mounted on a tractor driven by an assistant. From time to time, he would adjust the Transmission lines to coincide with the rotation of the earth.

The signals were recorded on an ink recorder. The recorded rolls were checked and the information was collated at Dr Reber's home in the Midland town of Bothwell. From time to time, this information was sent to USA.

Some years ago, I was contacted by an old NRL friend in Washington State. He said he had a friend going to visit their mutual friend, Dr Reber, and could he stay with us during his visit. He told me not to be deceived by this person's appearance – his name was William E Howe and he "Was a very cluey gentleman"!

Eventually, Bill Howe arrived and introduced himself. Next day, we drove to Bothwell to meet with Dr Reber (whom I had met previously) and I will never forget this meeting. We had lunch at the old stone, convict-built Bothwell Hotel, and the feeling I had sitting opposite perhaps the two most important people in their field in America, was almost indescribable.

Dr Reber designed and built a solar powered house at Bothwell. The whole front is covered with Solar Panels and the heat generated is ducted underground to heat up many tons of specially selected round rocks. Besides supplying hot water, this underground heat can be ducted to various rooms in the house from a central control panel.



Dr Reber's solar house at Bothwell

The author, left ,in the presence of two giants of radio research, Dr Grote Reber and WE Howe.

About 5 or 6 years ago, Dr Reber concluded his experiments, and the whole antenna system was dismantled.

I will always regret that I did not accept Dr Reber's invitation to "Bring a radio down and hook it up to my array"!

These Dipoles actually disappear from sight; they were so long.

(Some years ago I acquired a tape recording of an address by Grote Reber, to the Tasmanian Division of the WIA on "Radio-Astronomy". It is available to any one who may be interested. Bill Rice - ED)

ar

Dr Reber's giant antenna at Midland Tasmania

A Twin-meter SWR Bridge

An afternoon's work getting a new antenna's feed-point to closely match the characteristic impedance (Zo) of the coax feed-line may be seen as time well spent

Drew Diamond, VK3XU
45 Gatters Road
Wonga Park, 3115.

ONE OF THE MEASUREMENTS of keen interest to us is that of SWR in the coaxial cable link between shack and antenna, or rig and ASTU.

In low loss cable, the generally accepted maximum SWR for a permanent installation on HF is about 2:1, but human nature makes most of us aim for as low a figure as can reasonably be achieved.

Moreover, for correct operation, solid-state PA transmitters should source a low SWR load.

So, an afternoon's work getting a new antenna's feed-point to closely match the characteristic impedance (Zo) of the coax feed-line may be seen as time well spent, or a complete waste of effort- depending upon your point of view.

The most common Zo for coax cable inter-connections in radio work is 50 Ohms. An ordinary commercial SWR meter may require anything up to about 50 W power flow (or 1 A current) to give meaningful readings at 1.8 MHz.

Therefore antenna experiments must be done at that power level. At 28 MHz we may need only 3 or 4 W to operate the same meter.

That's the annoying thing about the strip-line coupler type meter. It has poor sensitivity at the low end of HF, rising to quite good sensitivity at the high end.

Another popular bridge arrangement- the current transformer type offers reasonably constant sensitivity across HF and into the lower VHF region, and improved sensitivity.

After experimenting with numerous published circuits, the following pattern is offered. It is easy to make and adjust, and no fancy test equipment is required.

Frequency range is from less than 1.8 MHz to at least 50 MHz (but not 144 MHz).

Full-scale forward readings are obtained at power flow levels less than 1 W, but the bridge may be safely used at 120 W, so it should be of interest to QRP and QRO operators alike.

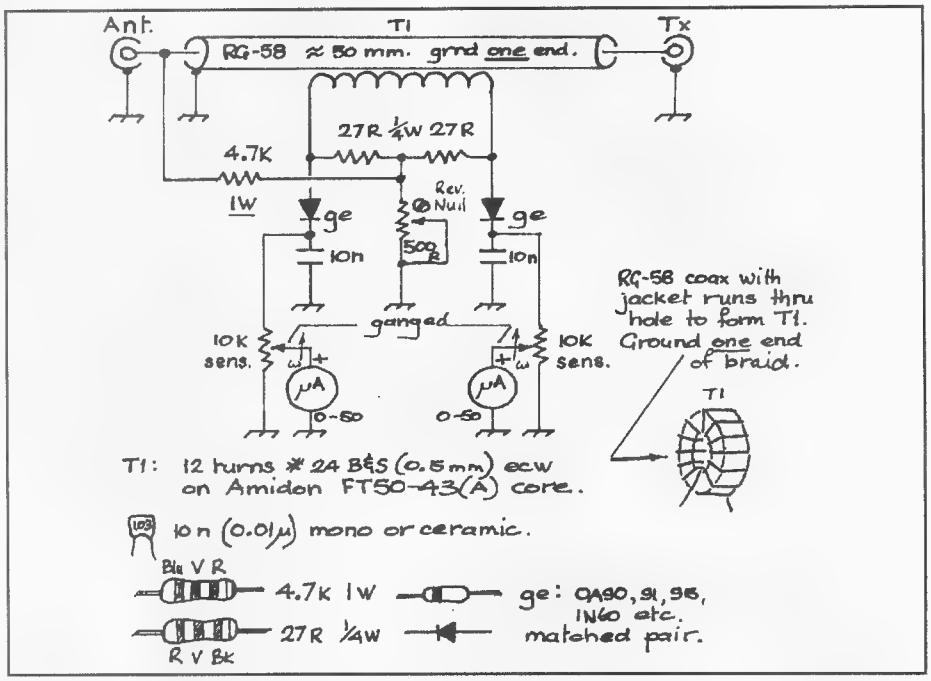


Figure 1

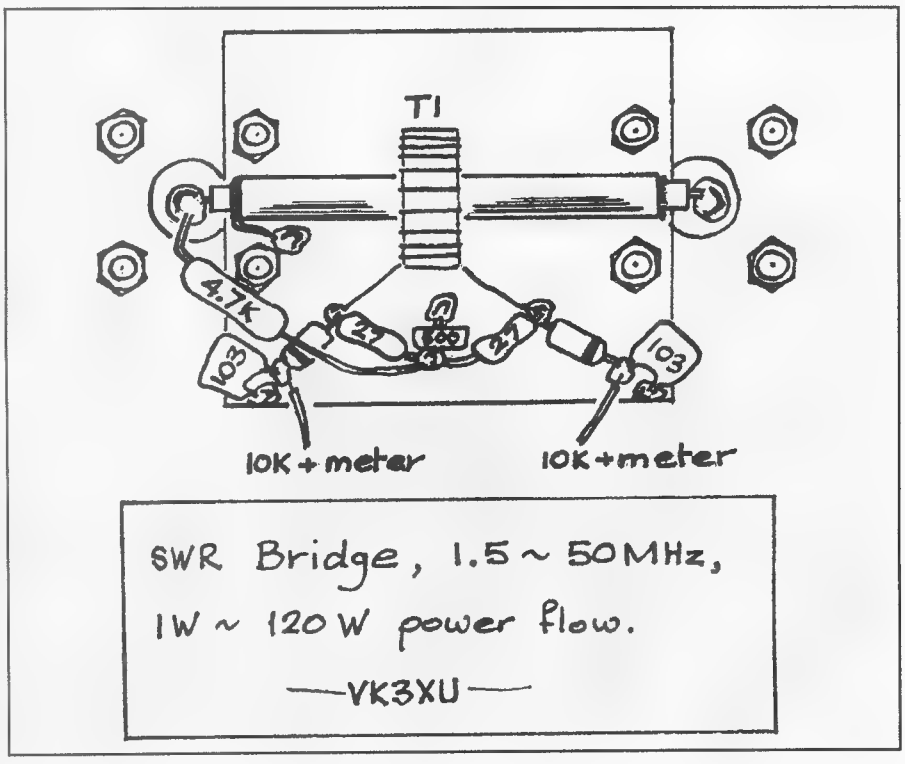


Figure 2

Circuit

The configuration is closely based upon those shown in References 1 and 2, but with modifications to suit prevailing parts availability.

When electromagnetic energy is flowing between the TX and ANT connectors, an RF magnetic field is set up around the short RG-58 line, where the relative strength of this magnetic component is sensed by current transformer T1.

The relative strength of the electric component of the field is sampled by the voltage divider formed by the 4.7 K resistor and 500 Ohm trimpot.

If the ANT connector is terminated in a non-reactive 50 Ohm impedance, the voltage established at the junction of the two 27 Ohm load resistors will aid the signal voltage induced into the secondary winding of T1 at one end and exactly cancel that at the other.

If the terminating impedance deviates from 50 Ohms non-reactive, exact cancellation will not occur, and the degree of "mis-match" will be detected.

For the curious, Ref. 3 has an excellent in-depth description, complete with design formulas.

Germanium diodes provide best affordable sensitivity as detector elements.

The DC signals thus obtained are displayed by two 50 (or 100) microamp meters, one reads relative forward power, and is set by the 10 K sens. pot for full-scale, and the other meter reads relative reflected power.

Construction

The bridge pictured in Photo 1 is housed in a Horwood type 34/6/DS aluminium box, which measures 75 x 100 x 150 mm.

Naturally, a box of smaller or larger dimensions would serve. The bridge could also be built into your ASTU, if desired.

My drawing attempts to show the layout for the RF parts of the instrument.

Note that the braid of the RG-58 coax is grounded at one end only and thus forms an electrostatic screen between primary (line) and secondary of T1. By the way, in this context, ground means "chassis"- not necessarily earth ground.

Wind 12 evenly spaced turns of #24 B&S enamelled copper wire onto an Amidon FT50-43 (A) toroidal core.

You should find that the coax jacket is now a snug fit through the hole of the core.

The distance between the connectors is not especially critical; about 50 mm is recommended. Use connectors of your choice.

A rectangle of plain printed circuit board is fitted under the connector mounting nut(s) as depicted in Photo 2.

The direct "ugly" wiring method is employed.

Tags and other devices will only add stray inductance and capacitance, and possibly spoil the upper frequency range and/or SWR 1:1 null.

Diode, resistor and capacitor leads should be as short as reasonably practicable.

For the diodes and capacitors, leave sufficient lead length for you to apply long-nose pliers as heat sink when soldering these parts.

Buy or obtain a number of diodes (they're cheap enough), sort through them and select a pair which has lowest identical forward resistance on your multimeter's X1 Ohms range.

Also check that their reverse resistance is very high, typically in the Meg-Ohms.

Whilst you've got the multimeter out, it would also be a good plan to check the resistance of your dual-gang 10 K pot.

Rotate the pot to about half travel (for an "A" taper) and check that each gang has identical, or at least very similar resistance readings of typically 5 K between middle and outside tags.

Photo 3 shows the wiring away to the dual-gang pot and meters, which is not critical, as these carry DC only.

If QRP operation is not planned, the meters may be of a less sensitive type, such as identical 500 microamp, or 1 mA for QRO.

If your bridge will only ever be used for QRP work, the 4.7 K resistor may be an ordinary 1/4 W type. However, at the QRO 100 or 120 W power level, the 4.7 K must be a 1 or 2 W, preferably metal film.

Operation

The circuit deliberately does not show which meter reads FWD and which is REV, because these depend on the relative phasing of the toroid winding.

It's simpler in the long run if we "discover" which is which, so leave any labelling off your connectors until later.

Make up a 50 Ohm termination. Photo 4 shows two possible methods, which yield a satisfactorily low SWR.

One is a "thru" termination with BNCs, and the other is an end termination using a PL-259. Solder on two 100 Ohm 2W metal film resistors- short leads (not wire wound- as if I have to remind you!).

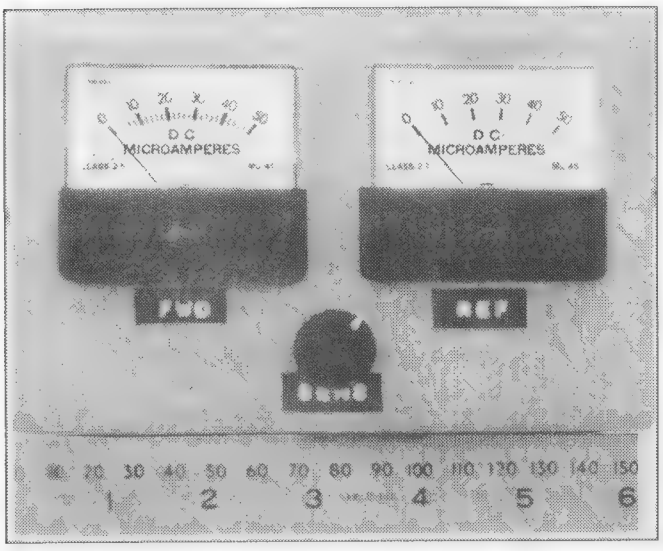


Photo 1

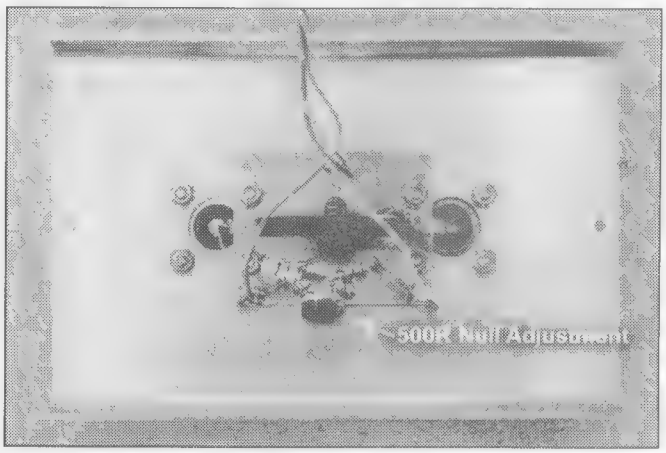


Photo 2

We can apply twice the resistor's rated power in short bursts, say 8 or 10 W, but 4 W allows us to twiddle indefinitely, so crank the transmit power down accordingly.

You may already have some other terminating device which has a very low SWR- but use it only if you know that it is less than about 1.05:1 at 28 MHz.

Link a 50 Ohm coax cable between the (nominal) TX connector and your transmitter's output, and connect the 50 Ohm load to the (nominal) ANT connector of the bridge.

Adjust the 500 Ohm trimpot to about half travel and similar for the sensitivity pot.

Apply some CW power at mid HF, say 14 MHz. One meter will read a high value, the other low. Maintain the sens pot for a full-scale reading on the higher one.

Now carefully adjust the 500 Ohm trimpot for a null on the low reading meter that should go to zero if your termination is very good.

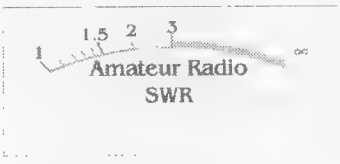
The most sensitive displày of REV readings will be had if you go for a null on the REV meter which corresponds with the downward trend on the FWD meter.

This sounds tricky, but when you do it you'll see what I mean.

If the resulting orientation of the connectors turns out not to suit your set up; swap over the meter connections, or, if you have used a Horwood box like mine, simply turn the back panel through 180 degrees.

The SWR 2:1 mark may be easily found by connecting two 50 Ohm terminations in parallel to make 25 Ohms. Typically SWR 2:1 will lie at 20% of full-scale on the REV meter, and SWR 1.5:1 lies at 10%.

During actual on-air operation, the bridge may be left in-line. The insertion of the bridge causes no measurable loss, or harmonic generation.



Do you know of a process, a technical shortcut or a completely new way to achieve an amateur radio result?

Share it with

Amateur Radio

and your fellow amateurs

References

1. *Radio Communication Handbook - 6th edition, RSGB, pp 15.30 - 15.31.*
2. *Test Equipment for the Radio Amateur, C. Smith G4FZH, RSGB, pp 56-58.*
3. *HF Antenna Collection, E. David G4LQI (Ed.), RSGB, pp 211-213.*

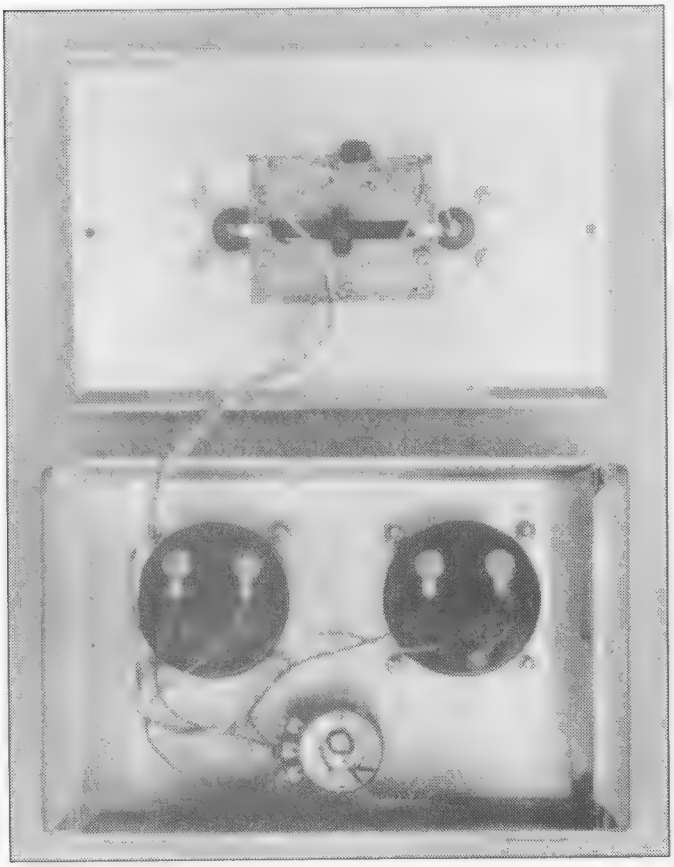


Photo 3

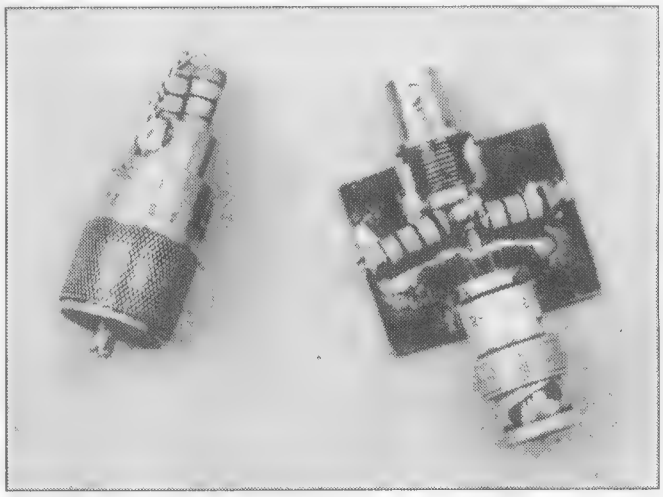


Photo 4

CTCSS Tone Detector

Warren Stirling VK3KSW
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E-mail warrens@blackboxoz.com.au

This circuit came about because I wanted to be able to detect which of the repeaters I use were transmitting CTCSS tones. Being unable to program any of my rigs to scan for CTCSS tones, I decided to build a unit to do what I wanted, and this is the unit that resulted.

CONTINUOUS TONE CODED SQUELCH SYSTEM, (CTCSS) is a method used to keep a radio receiver muted.

When a tone with a particular frequency is detected in the received signal, the mute opens or a control function is implemented; eg keying up a link transmitter. The 2m repeater VK3RAG will also key up the 6m repeater VK3RTN when a CTCSS tone is detected, so that the received 2m signal is transmitted on both 2 and 6m.

Some repeaters cannot be keyed up at all until a signal with the correct CTCSS tone is received. This is usually for interference reasons. A nearby transmitter may open the mute of a repeater receiver even though it is on a different frequency.

The selected CTCSS tone must be included with the transmitted uplink signal but should not interfere with the audio signal. Most audio stages in modern transmitter and receiver pass an audio signal in the range 300Hz to 3.4kHz.

The CTCSS tones are in the range 67Hz to 250Hz (below the radio's audio signal range) which is why they are also called subtones (sub audible tones). They are injected into the transmitted signal after the normal audio stages and are recovered from the receiver just after the discriminator and before audio filtering.

Overview

The only control on the described unit is a front panel reset button.

When the unit is powered up, it begins searching for a valid CTCSS tone in the sampled audio. The unit starts with the 250.3 Hz CTCSS tone and scans down to the 67.0 Hz CTCSS tone and will continue to scan until either the unit is switched off or a valid CTCSS tone is detected.

In the latter case the scan stops and a number representing the applied tone is displayed on the two 7 segment displays.

The detected CTCSS tone is also generated by the unit. This facility was included as the CTCSS chip used also has a tone generator function. A preset pot is located on the CTCSS board to adjust the level of the generated CTCSS tone but adjustment is only required if the encode function is implemented.

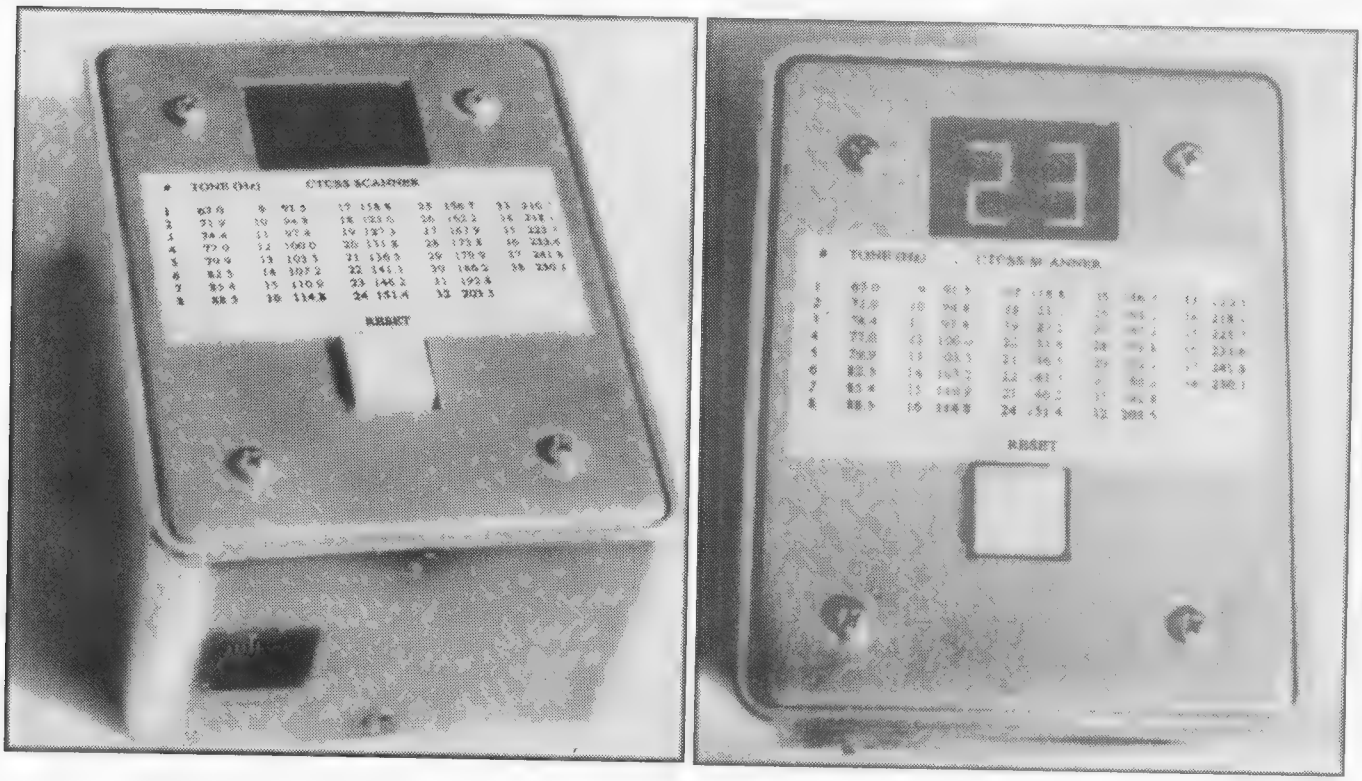
Specifications

Audio input level: - minimum 150mV direct from discriminator

Dc: 10 - 15V dc @ 58mA max

CTCSS: detects and can generate all 38 CTCSS tones.

CTCSS tone generator output level is adjustable



Operation

On power up, the unit will begin scanning for a valid CTCSS tone taking approximately 16 seconds to check all of the 38 valid CTCSS tones.

The LED decimal point of the left display will light when the scan is running and will flicker as each CTCSS tone frequency is checked.

If no tone is detected the circuit will keep scanning. When a valid tone is detected the scanner stops and a display number in the range 1 to 38 indicates which of the tones was detected.

At this time the decimal point led will go out indicating that the scan has stopped. The unit will also generate a CTCSS tone of the same frequency as the tone that was detected.

This audio signal can be fed to a transmitter after the audio amplifier and emphasis circuitry. Thus a CTCSS tone can be relayed from repeater to repeater via links.

The cycle can be restarted by interrupting the power or by pressing the reset button. The reset button can also restart the cycle at any time during the scan.

NOTE: due to the slow scan time, which is a limitation of the FX335, demodulated audio must be applied for a continuous 16 seconds so that all possible CTCSS tones can be checked.

Circuit overview

The prototype scanner consists of three boards: -

- **A display board** that has the two seven segment displays, their drivers and the reset switch;
- the CTCSS encode/decode board that has the FX335 CTCSS chip and audio buffers;
- the control board that has the control EPROM, counter, flip flops and monostables which run the unit.

The display and CTCSS boards were removed from other equipment and have been modified from their original specifications.

Only the control board has been designed and built from scratch.

Brian, VK3TRS has designed PC boards for the control and display sections making the project easier to build.

The CTCSS board remains separate so that any CTCSS board using the FX335 chip can be adapted for use.

The control and display boards can be used with CTCSS boards other than the Plessey unit used in the prototype by reprogramming the control EPROM.

The only requirements are that the tone select inputs are of the parallel type and not the serial type and that the CTCSS board has a tone select output which goes active low when a tone is detected. You can't use an Icom UT-40 board for example, as it is a serial type.

The CTCSS board from a Philips FM900 series radio would be ok, as long as it is the encode/decode board (FX335 chip) and not the encode-only board (FX315 chip).

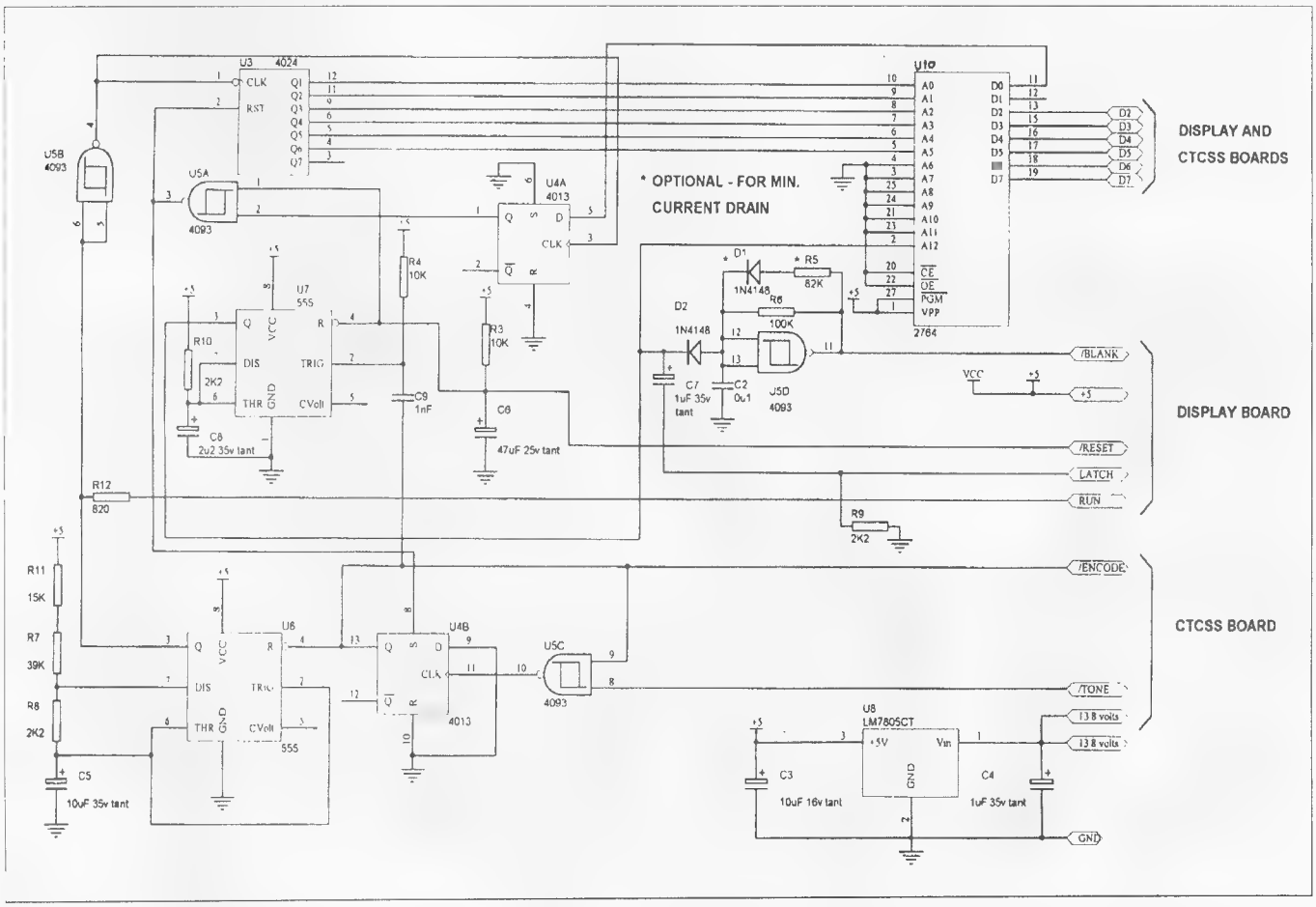
Alternatively, any board using the FX335 chip would be suitable.

Technical Description:

CONTROL BOARD

On power up R3 & C6 provide a low going reset pulse which is applied to the reset input of U7, a 555 in monostable mode, and to one of U5A's inputs. U5A, a 4093 nand schmitt trigger, shapes and inverts the low going reset pulse and applies the inverted pulse to the reset input of U3, a 4024 counter and to the set input of U4B, a 4013 D type flip flop.

Setting U4B will enable clock oscillator

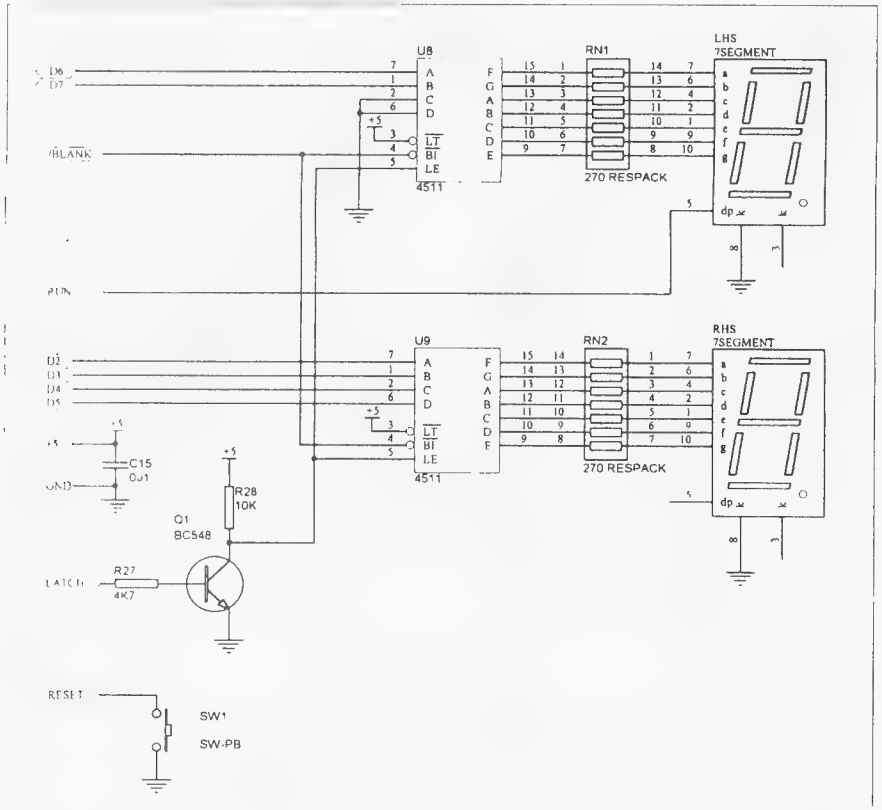


U6, a 555 in a stable mode and blank the two 7 segment displays by disabling U7 that controls the display blanking oscillator U5D.

Resetting U7 holds the A12 input of U10, a 2764 EPROM, low which selects the FX335 translate table in the EPROM.

U6, enabled by the Q output of U4B, has its output inverted by U5B before it is applied to the clock inputs of U3 and U4A.

The inversion is required to prevent counter U3 from interpreting the transition of the clock oscillators' output from the active to the disabled state as a valid clock edge.



This would show the wrong tone information on the 7 segment displays. (The oscillator is disabled when a valid tone is detected).

U3 delivers address inputs to U10, pins A0 to A5. Data output D0 resets the counter on every 39th clock pulse to provide the 38 output states for the 38 CTCSS tones.

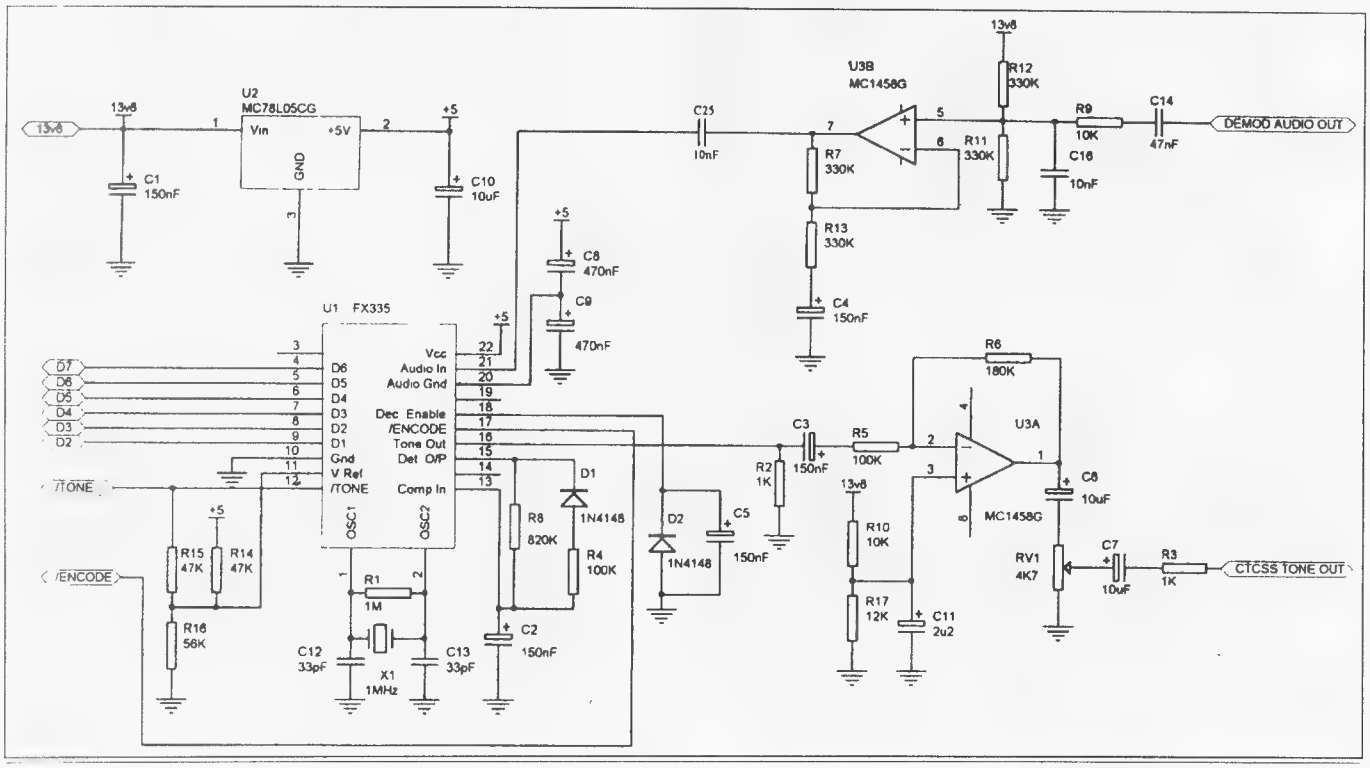
U10 also translates the counter coding to the data required by either the tone select inputs of the FX335 CTCSS chip when A12 input is low or the BCD coding required by U8 & U9, the 4511 display decoder/drivers for the two 7 segment displays when A12 input is high.

No tone detected

If no valid CTCSS tone is detected before the end of the scan cycle the D0 output from U10 will go low when counter U3 reaches the 39th count, resetting U3 via U4A and the second input of U5A which will restart the scan cycle.

The D0 output of U10 is applied to the second input of U5A via flip flop U4A which prevents any glitches present on the D0 output from resetting counter U3 prematurely. (Glitches caused by the D0 output settling when the counter outputs change state)

As the state of U10's D0 line is applied to U5A via U4A on the 0 to 1 edge of the clock pulse (U3 clocks on 1 to 0 edge, U4 clocks on the 0 to 1 edge) the D0 line has time to settle (the period of the clocks' 0 state) before its state is transferred to U5A's input.



Tone detected

When a valid CTCSS tone is detected U1, the FX335 chip, brings its tone detect output low.

The 1 to 0 transition of this output is inverted by U5C and the inverted edge clocks U4B, resetting it and latching the state of the tone detect line.

This stops U6 by bringing its enable input low via U4B's Q output and also disables U4B's clock input via U5C's second input, preventing any further transitions of the tone detect line from clocking U4B.

Bringing U4B's Q output low also enables the encode half of U1, generating a CTCSS tone of the same frequency as the tone detected.

The 1 to 0 transition of U4B's Q output triggers monostable U7 via C9 and R4 which convert the transition to a negative going pulse, ensuring that U7 is reliably triggered.

The sequence of events triggered by U7's output going high is as follows: - U7's output drives the A12 line of U10 high for 5ms (the monostable timing period, as set by C8 and R10), changing the data presented by U10 from CTCSS data to display data.

The display data is stable for several milliseconds before it is latched into U8 and U9 because the 1 to 0 transition required to latch the data into the display drivers comes from C7 and R9 which generate a pulse slightly shorter than 5ms (approx 3ms).

These two timing pulses (3ms and 5ms) have a fixed relationship as they are triggered at the same time - when the 5ms pulse ends U10's A12 line goes low (its' initial state), again presenting CTCSS data to U1.

Note: data from U10 is sent to both U8 & U9 (the display drivers) and to U1. While the scan is running the displays are blanked so the data presented to U8 and U9 is irrelevant.

When the EPROM data is changed to display data, U1s' tone detect output will go high as it responds to the data change as if a different tone had been selected.

When this happens, the tone presented to U1's audio input will no longer match the tone selected.

For this reason the state of the tone detect line is latched by U4B at the moment when a valid tone is detected and its clock input, which is driven by the tone detect line, is disabled immediately afterwards by U5C.

U4B can only be reset by a power off/on sequence or by pressing the reset button.

The circuit is powered by a U8, a 5v regulator that is locally bypassed by C4, a 1uF capacitor, on the input and C3, a 10uf capacitor, on the output.

FX335 CTCSS Board

This board is a standard Plessey CTCSS board (assembly 630/1/42733), which has been modified for this application.

Components Q1, Q2, Q3, R8, R9, R11, R13, 1D2 - 6D2, 1D3 - 6D3 (Plessey component designations) have been removed and the circuitry around the MC1458 audio input buffer has been changed to give a gain of about 2.

The input drive level is thus reduced from the 360mV (approx) required by the FX335 to around 150mV from the receiver.

Demodulated audio is fed via C14 to U3B, the MC1458 audio input buffer, via a filter network consisting of R9 and C16.

The buffer output drives the audio input of U1, the fx335 CTCSS encode/decode chip via C25, which is required for dc blocking.

U1 uses a switched capacitor filter to detect CTCSS tones in the range 67 to 250.3Hz, taking approximately 250mS from the time the tone is applied to give a valid tone detect indication by bringing the tone detect output (pin 12) low.

If no tone or a tone with a frequency other than that set by the 6 tone select inputs is applied then the tone detect output remains high.

The data outputs D2 - D7 from U10 drive U1s' tone select lines and change to the next tone in the scan sequence every 260mS.

As U1 has a maximum lock time of 250mS a delay of 10ms is automatically included to allow the select inputs to settle.

When a valid tone is detected pin 12 (tone detect) of U1 goes low, stopping counter U3 on the control board (which drives the tone select inputs via U10).

The CTCSS board has an on board 5v regulator that has been retained to prevent digital noise from the logic and display boards from interfering with the essentially analogue CTCSS circuit.

The input voltage for this regulator is paralleled with the input of the control boards 5v regulator (U8) and is locally bypassed by a 150nF capacitor on the input and a 10uF capacitor, on the output.

Display Board

The board mounts two 4511 BCD decoder/drivers, U8 & U9 and their associated latch input inverter transistor Q1, display current limit resistor packs RN1 & 2, the two 7 segment displays LHS1 & RHS1, and SW1, the reset switch which is accessible from the front panel.

The displays are blanked by U7 on the control board that controls U5D, the oscillator that drives the 4511's blanking line.

Driving the 4511's blanking line from an oscillator substantially reduces display current as the displays are pulsed on and off, rather than being on continuously.

The display current can be reduced further by including the (optional) diode and resistor across R6. In either case a red filter (to make the lit segments more easily visible) is required.

The displays become active only when the scan stops after detecting a valid CTCSS tone. The BCD inputs of the 4511's are driven by the D2-D7 outputs of the EPROM (U10) on the control board.

The decimal point led for the left hand display is driven by the output of U6 on the control board (oscillator clock signal) to provide a visual indication that the scan is running.

The display board derives its power from U8, the 5v regulator on the control board, and is locally bypassed by C15, a 0.1uF capacitor.

Notes

The display and control circuit boards are available from Brian VK2TRS.

They are based on the circuits as drawn but have not been built and tested.

Pre-programmed control EPROMs are available from:

Warren VK3XSW, BH 03 9879 7100 or E-mail to warren@blackboxoz.com.au

Acknowledgements

I would like to acknowledge the input of Brian, VK2TRS, for turning my hand drawn circuits into something legible, his input on the circuit design and for designing the display and control board PCBs to simplify the project.

Thanks also to Roger, VK3BKR, for the use of the test equipment.

ar

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Features:

- Tx 144-148, 430-450MHz
- Rx 118-174, 420-470MHz
- 2m RF Output: 2.0, 1.5, 0.5, 0.02W
- 70cm RF Output: 1.5, 0.5, 0.02W
- Twin VFOs per band
- 120 memory channels
- Dual-band & dual in-band receive facilities (VHF/VHF, VHF/UHF, UHF/UHF)
- DTMF Paging and Messaging
- Large illuminated LCD screen
- Auto battery saver, Auto battery off
- CTCSS encode/decode
- Australian version selectable Auto repeater shift
- Includes FNB-31 600mA/H NiCad, belt clip, AC charger, CA-9 charging stand and high efficiency antenna.

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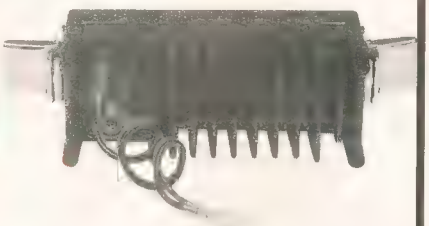

FT-290RII 2m all-mode transportable

Covers 144-148MHz and features FM, SSB (USB/LSB), & CW operation with 2.5W or 250mW switchable output power, twin VFOs and 10 memories that store mode and simplex or repeater frequencies. Selectable tuning rates are also provided for SSB/CW and FM (SSB- 25Hz/100Hz/ 2.5kHz and 100kHz; FM-5/10/20kHz and 1MHz). Mode specific features include a noise blanker and clarifier control for SSB/CW, plus a full set of functions for FM repeater operation, making this unit very simple to operate. It comes with a flexible rubber antenna, an FBA-8 battery holder which takes 9 x C size batteries (standard or NiCad) and a hand-held microphone.

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D 3800

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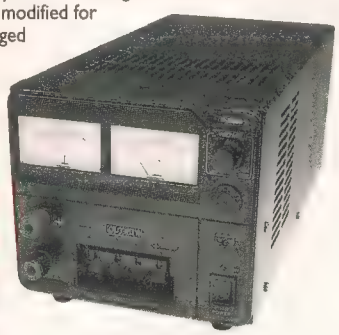

$185

VHF/UHF Power/SWR Meter

A high-quality SWR/power meter suitable for Amateur, UHF CB and commercial applications. Durable Japanese construction assures you of maximum reliability. With an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W and 200W power scales. Revex model W540.

D 1370

FT-50RD 2m/70cm Handheld

The Yaesu FT-50RD is an amazingly compact 2m/70cm amateur band handheld transceiver which provides MIL-STD 810 shock and vibration resistance, super wideband receiver coverage, simple menu settings for most functions, and compatibility with the optional Yaesu ADMS-1D software/interface package for PC programming of many functions.

Other features include:

- Tx 144-148MHz, 430 - 450MHz
- Rx 76-200, 300 - 540, 590 - 999MHz (cellular blocked)
- FTT-12 keypad provides Digital Voice Recording, CTCSS/DCS scanning, and CTCSS encode/decode
- 2m/70cm RF output: 2.5, 1.0, 0.1W standard; up to 5W with 9.6V battery or 12V DC socket
- "Omni-glow" LCD screen for easier night-time viewing
- 112 memory channels with 4 character alpha naming
- Dual watch allows monitoring of sub-band activity
- Direct FM modulation for better audio quality
- 5 battery saving systems (includes Rx and Tx Save)
- Comes with FNB-40 slimline 6V 650mA/H Nicad battery pack, flexible 2m/70cm antenna and modified M-9626 AC plugpack adaptor for Nicad charging

D 3660

2 YEAR WARRANTY

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BONUS!

[illegible]

FT-8100R 2m/70cm Mobile

The stunning new Yaesu FT-8100R is a state-of-the-art 2m/70cm band mobile transceiver that combines high power and the industry's most versatile memory system with an excellent wideband receiver and solid construction. Its US MIL-STD-810 shock and vibration rating is your assurance of years of reliable operation. Includes hand mic, mounting bracket and fused DC power cord.

Other features include:

- 198 memory channels
- 1200/9600 baud packet socket
- Inbuilt antenna duplexer
- Inbuilt crossband repeater facility
- Dual receive capability (VHF/UHF, VHF/VHF, UHF/UHF)
- Optional removable front panel

Frequency range: Tx 144-148MHz, 430-450MHz Rx 110-550MHz, 750-1330MHz (less cellular)

Output power: 2m: 50W, 20W, 5W 70cm: 35, 20, 5W

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D 3314

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TECHNICAL ABSTRACTS

Gil Sones VK3AUI
30 Moore Street
Box Hill South Vic 3128

Compact Mobile Tuner

An antenna tuner designed to extend the operating bandwidth of resonant mobile antennas was described by Patrick Wintheiser W0OPW in QEX Jan/Feb 1999.

The design is based on the work of Ulrich Rohde as described in QST Dec 1974.

The idea is to transform the 50 Ohm coaxial impedance to a lower value and then use an L match tuner. This gets over some difficulties that might be experienced with the L match.

In this design the L match has been modified slightly by the addition of a series output capacitor added to the basic L match.

The author includes a bypass facility for use where the basic SWR is below 1.5:1. The author points out that this avoids extra loss that might occur in such a situation.

The transceiver has no need for the use of a tuner in such a situation.

The tuner circuit is given in Fig 1. The capacitors C1 and C2 are 20-400 pF units and broadcast types could be pressed into service.

Note that C2 is hot to RF and the shaft and mounting should be insulated.

The bandswitch as shown has one less tap than those given in the coil data and you should use a switch suitable for the number of taps that you use.

T1 is a 4:1 balun. It is wound on an FT114-43 or larger ferrite toroid using RG174 coax. The winding is 12 turns and the output end of the inner conductor is connected to the input end of the outer conductor and this is the centre tap point.

The centre conductor is the primary and the outer conductor is the secondary winding. The two windings are series connected and act as an auto-transformer.

L1 is 22 turns of #14 enamelled copper wire wound on a T-130-6 or larger powdered iron toroid core. L2 is an 8.5 turn winding of #14 bare copper wire about 1.5 inches long on a 1.25 inch OD former.

A plastic 35mm film canister was used for the form. L2 is tapped at 1 turn for 40 metres, 4 turns for 30 metres, 6 turns for 20 metres and at the top or 8.5 turns for 17-10 metres.

Obviously the wiring supplies the inductance for 17-10 metres.

Patrick also described an output current meter that he found useful for tuning up. This is shown in Fig 2.

The transformer T2 is wound on a T-37-2 powdered iron toroid core.

The one turn primary is formed by passing the wire from the output through the centre of the toroid.

The secondary winding is 20 turns of #28 enamelled wire.

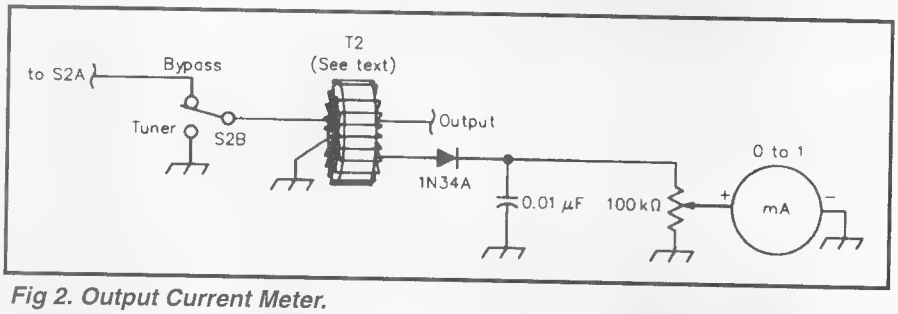

Fig 2. Output Current Meter.

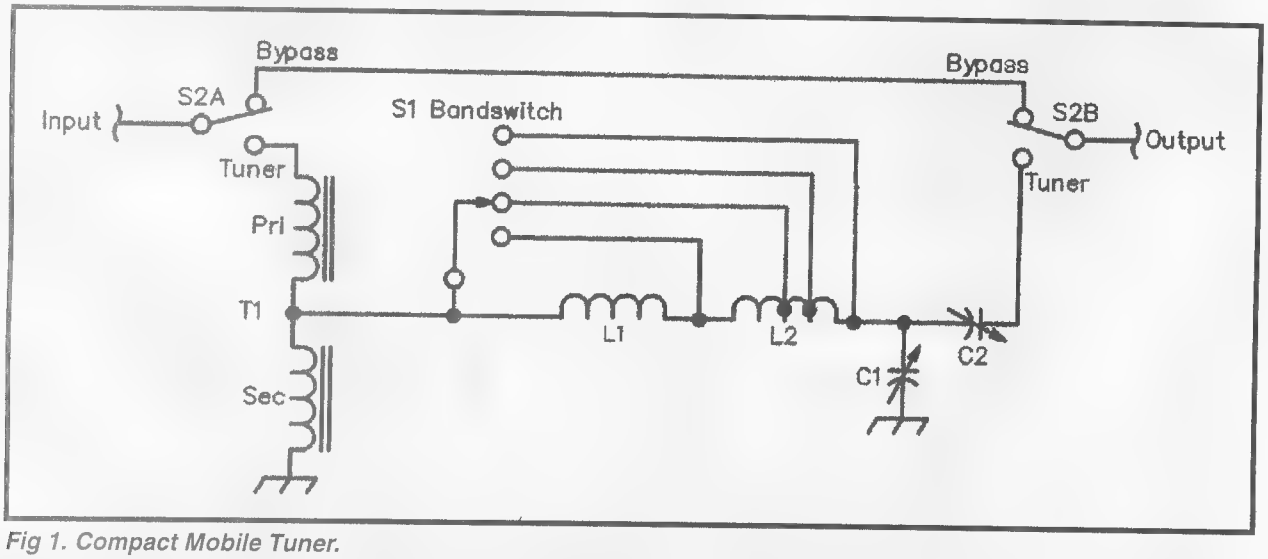

Fig 1. Compact Mobile Tuner.

Touch Sensitive Key

A circuit for construction of a touch sensitive key appeared in Rad Com March 1999. The author was Geoffrey Walsh GM4FH. The key uses a high impedance input with the circuit being made when the operator touches a touch pad.

This allows considerable variety of touch pads and avoids the need for precise mechanical construction.

The touch pads used were brass buttons glued onto plastic tap washers that were in turn glued to the keyer case.

Contact with the metal case provided one side of the electrical circuit and the operator's finger touching the button completed the circuit.

The currents involved were minute and the voltage was only 9 Volts.

One circuit for a straight key is shown in Fig 3.

The Op Amp has a high input impedance and is easily keyed by the small current that flows when the button input is earthed by the operator's finger.

For an iambic keyer two such circuits are required and the CA3240 twin version of the Op Amp could be used.

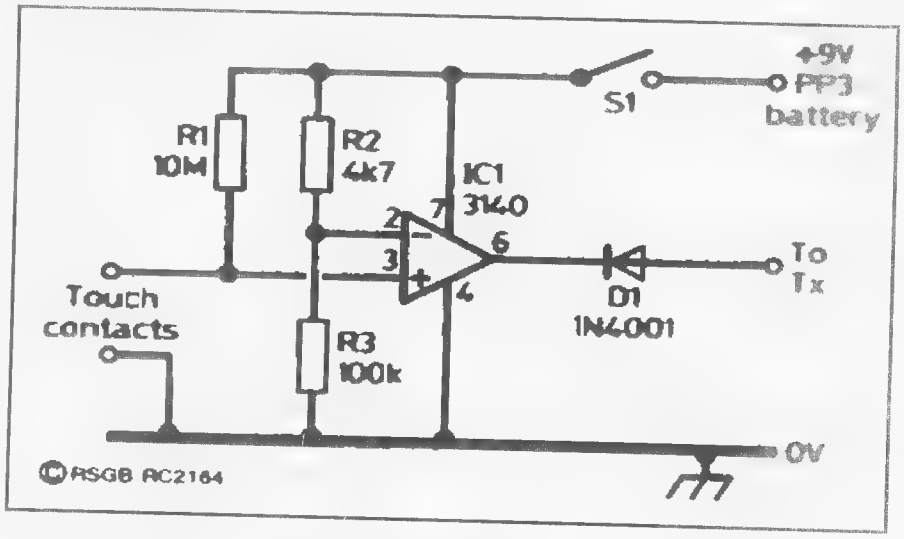

Fig 3. Touch Contact Keying Circuit.

A more complex circuit, which allows a piezo buzzer to be used for sidetone, is shown in Fig 4.

The circuits shown are only suitable for use with solid state radios.

To use them with valve radios either a keying relay output would need to be provided or a suitable high voltage solid state keying output stage would need to be provided.

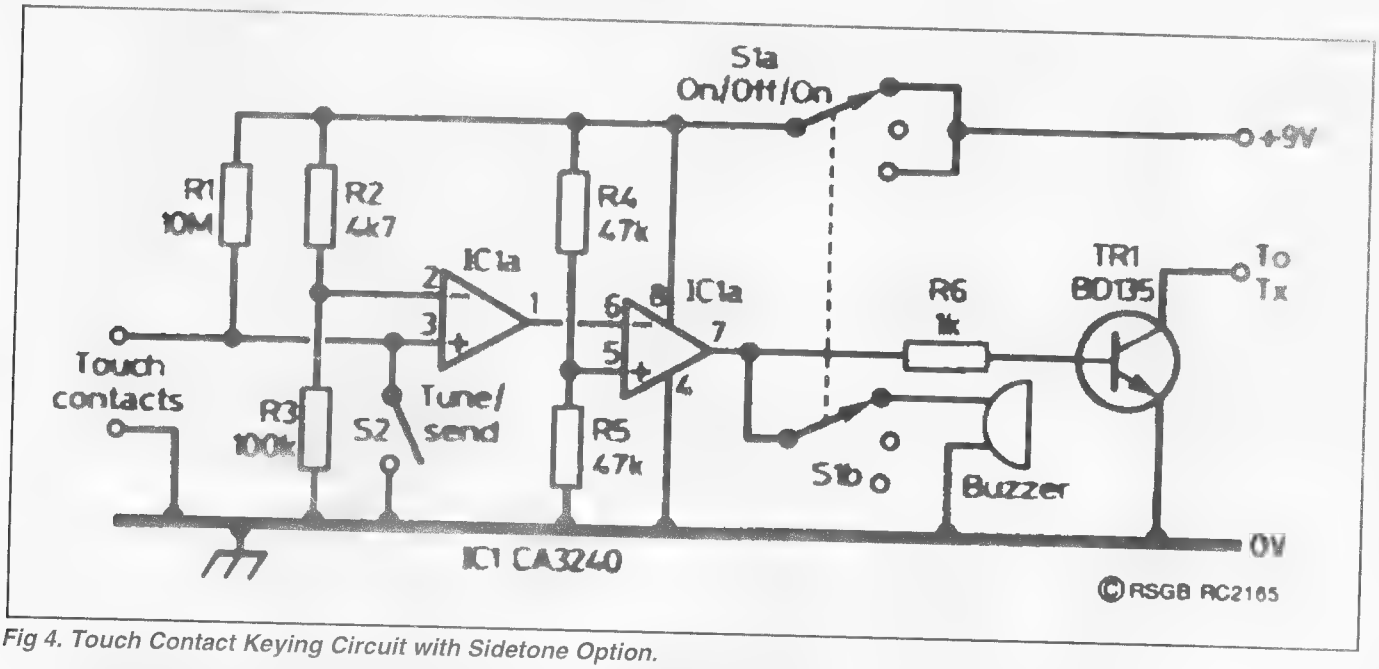

Fig 4. Touch Contact Keying Circuit with Sidetone Option.

Have you seen an article that may be of interest to the avid readers of Technical Abstracts.

Send a copy to our Technical Abstracts cordinator Gil Sones for assessment and possible inclusion in Amateur Radio

Ceramic 7 MHz Preselector Filter.

An interesting preselector filter for the 7MHz band appeared in the Eurotek column of Erwin David G4LQI in the March 1999 issue of *Rad Com.*

The item originally appeared in *Old Man* October 1998 and the authors were Max HB9AFR and Markus Zimmermann HB9JNH.

In Europe the 7 MHz band suffers from the close proximity of several high power broadcasters.

The strong signals tend to swamp weaker signals which amateurs are trying to listen to. While a modern front-end helps, some additional help from a front-end filter is very useful.

The authors found that Murata make a 7.02 MHz ceramic filter which has the type number SFE 7.02 MHz.

However it is not readily available in small quantities. They obtained some and tried them out as front-end filters with some success.

The filters require matching transformers for use in a 50 Ohm system, as they are 300 Ohm devices. A single section filter is shown in Fig 5

The matching transformers were wound on Amidon FT37-77 ferrite rings. The winding was 28 turns of 0.28 mm enamelled copper wire tapped at 10 turns from the earthy end. The optimum value of the coupling capacitors is 100 pF.

A two section unit was also tried and is shown in Fig 6. The capacitors C3 and C4 were 390 pF.

The response curve of the filter is shown in Fig 7. The single section has an insertion loss of 4.5 dB and the two section unit has an insertion loss of 7 dB.

Supply of the filters is a problem. Markus had a small supply and may still be willing to supply interested amateurs.

Payment in US dollar notes only, as banking small amounts is expensive. The cost plus postage for a single section is $US 12 and for a two section $US 15. Postage was given as $US 3 but could well be somewhat more for delivery to Australia. Check first.

His address is Markus Zimmermann, Toenler 2, CH-9548 Matzingen. His Email is 100724.2637@compuserv.com. This information is provided only to help track down the parts and you should exercise caution.

However it is only a small amount of money if you really want to try the circuit.

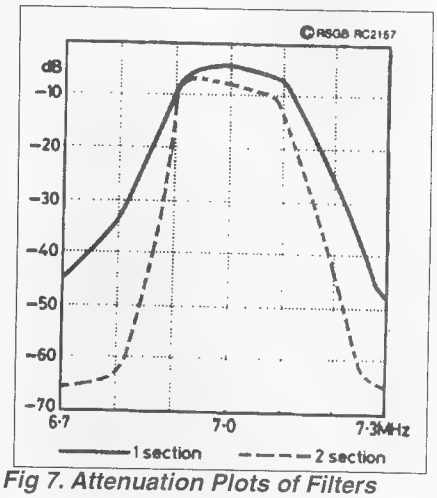

Fig 7. Attenuation Plots of Filters

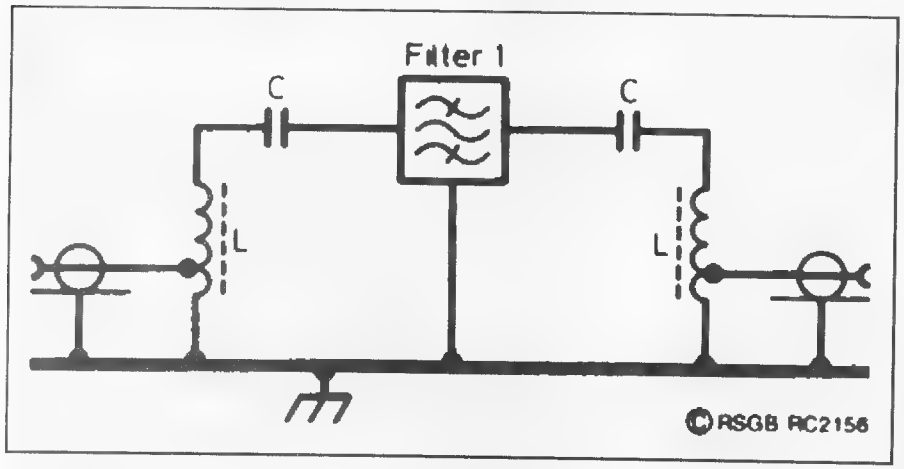

Fig 5. Single Section 7MHz Bandpass Filter.

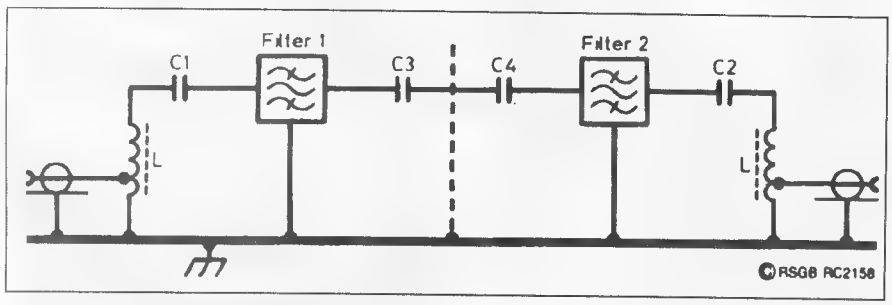

Fig 6. Two Section 7MHz Bandpass Filter.

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POUNDING BRASS

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Here is a simple QRP transmitter that can be made in an evening. The only tuning is in adjusting the oscillator/transmitter section for the purest sounding note. The builder should get hours of fun building and using this simple 80 metre transmitter.
The all up cost of building the transmitter was just under $20.00 and would be considerably less if you have most of the components on hand.

Circuit Description

T1 forms the load for Q1, the inductor for the tank circuit and the output coupling transformer. C1 and C2 form a capacitive voltage divider to limit the amount of feedback in the oscillator loop to a loop gain of one.

C3, the tuning control is adjusted to obtain the clearest CW signal. D1 helps to reduce harmonics in the output waveform. C7 smooths any ripple on the supply and shapes the keying waveform. C4 shunts any RF on the DC line to ground.

If not powered by a portable battery, a small line choke or ferrite bead on the supply from the key would help avoid modulating the signal with noise.

R1 delivers just over 1mA to the base of Q1, a 5 watt NPN RF transistor, which can handle a very high SWR when operated at 12 volts or less, C5, C6 and L1 provide a low pass filter to limit any harmonics before they reach the antenna.

Construction

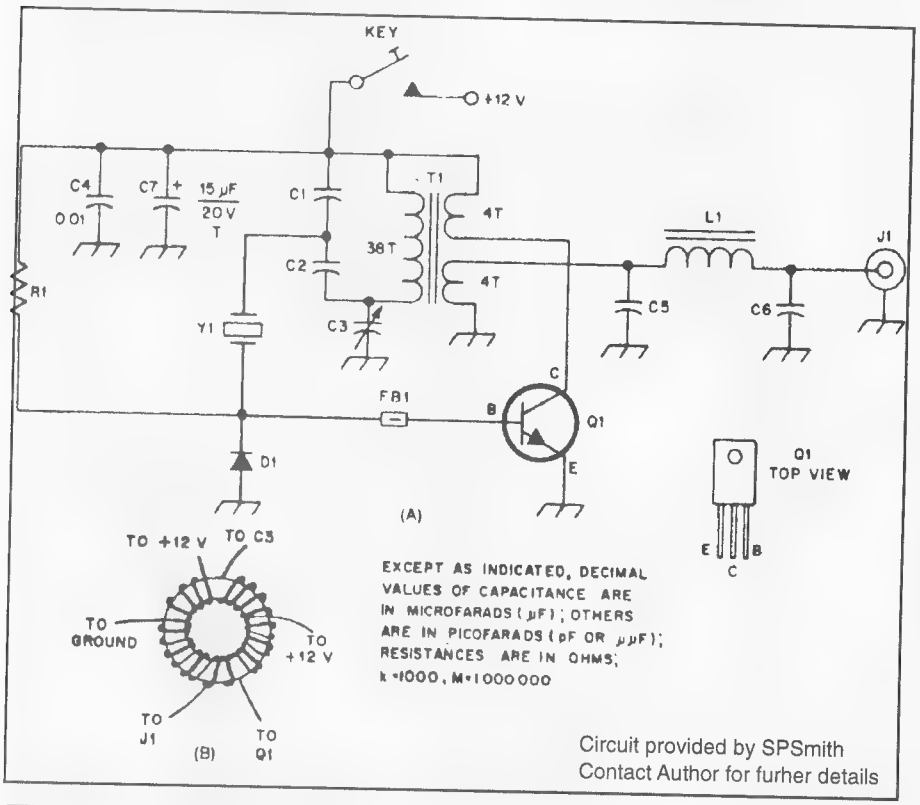
The only trouble I experienced was in the winding of T2 (Toroidal transformer). After a few practice runs I was more confident in winding toroids.

Remember to scrape back the protective enamel before soldering, it is also a good idea to code the ends for easy identification with a little liquid paper or coloured tubing. Even insulation from hookup wire can be used.

The layout is not critical other than keeping component leads short. Normal construction practices are required. You can wire the circuit on Versa Strip Boards which is similar to the old English Veroboard or printed stripboards.

I used a blank printed circuit board as a ground connection and glued 1 cm x 1 cm insulated copper board to this which acts like a bridge where a number of components can be attached to a central point.

However you decide to make yours, keep it neat and tidy. This will help if you have any problems later.



Circuit provided by SPSmith
Contact Author for furher details

Alignment

(1) Set a multimeter to the highest mA range and connect it in series with the 12 volt line.

(2) Attach a dummy load (two 100 Ohm resistors in parallel) and insert the required crystal.

(3) Connect to the supply, 9 - 13.8 volts.

(4) With a receiver, tune around the crystal frequency until a tone is heard. If none is found and 250 to 450 mA of current is being drawn on your meter, adjust C3 until the crystal begins to oscillate.

(5) Switch off the power and remove the multimeter.

Now connect your hāndkey.

Power up once more and send a series of "dits" . Again adjust C3 for the best sounding CW note.

Once you'r e happy with this, disconnect the dummy load and connect your antenna.

With a little time and effort you can get a QRP signal on air and actually communicate via something you have made for yourself.

Perhaps you could make it a club challenge to gain the best results from such units.

With a smaller transistor such as the BC549 and a 270k resistor for R1, this circuit could be used as a simple practice oscillator.

When coupled to a short piece of wire as an antenna, this practice set up shouldn't annoy anybody.

Component list overleaf

The Impossible QSO

Alan Shawsmith VK4SS
35 Whynot Street, West End Brisbane 4001

TI9C. Ebon Atoll 11.2.65.

Opr Don Miller, WP9WNV.

Propagation to East VK, poor to impossible. Activity from this spot, classified as a new country, would be sure to raise a wall to wall, sky-hi 'pile-up'.

And who better to set such a scene in action than DX'er extraordinaire, the man whose ears had the aural sensitivity of a cat, - W9WNV.

I checked out my chances; at best they were bleak. My beam was down being repaired. All I could muster was 90 watts into L.W. up 35'.

Solar activity was at rock bottom between cycles 19 and 20. Smoothed number 10-20. This meant no propagation above 20 metres and high local QRN on the lower bands due to storms. 'W' QRM.

No matter what band TI9C chose to use a 1000 59 Stateside signals would pound into his ears, as Ebon Atoll on the Cormorant Reef was only 1 DX 'hop' away to the S.E. (Split frequency working was used in 1965).

On my way to the car to go to work, my feet decided to make a right angle turn into the Radio Shack. I had already been listening before breakfast for TI9C without success. I switched on the all-valve transceiver, which had a 30 second delay before it came to life, and a 15 minute drift before settling down.

To my surprise a sound similar to a swarm of maddened bees came weakly audible rising and falling in its crescendo, - and then suddenly there was TI9C at about S4. Weak, woolly with an echo and working Ws at S9s.

I could tell by the sound of his signal that he wouldn't last, so I simply stretched out my hand to the 'bug' key and sent my call once. Imagine my shock when back he came VK4SS 229. This I immediately confirmed with his RST 559.

It was acknowledged and without a pause Don, W9WNV carried on disposing of the wall to wall Ws, 2 at a time, all at S9.

Less than 2 minutes later the sig of TI9C suddenly fell over the edge of propagation at that frequency and he was gone. I had been in the shack less than 3 minutes and had not touched the transceiver.

Only then did I think to check the band. It was 20 metre. Which direction was the beam? I remembered there was none.

The sun was almost 50 degrees to the horizon and at this latitude, up for three and a half hours, and the band had been dead for almost as long.

Was the circuit LP, SP or over one of the poles? I would never know.

I left for work walking on cloud 9 and feeling like a poker player who'd been dealt a royal flush when the stakes were high.

After 64 years Dxing and more than 100,000 QSO's later TI9C is one of my few most cherished QSL's. **ar**

Do you have a favourite QSO story?

Share it with us

POUNDING BRASS *continues*

Good luck, speak to you on air 73

Stephen Smith VK2SPS

COMPONENTS (80 metre operation)

J1		Antenna Socket
C1	0.001 uF	Silver mica capacitor
C2	100 pF	Silver mica capacitor
C3	80-600 pF	Mica compression trimmer or equiv
C5, C6	820pF	Disk ceramic capacitors
L1	T-37-2	Core, 24 turns of No 26 enamel wire
T1	T 50-2	(Toroidal Transformer) wound with No 26 enamel wire. Primary, 38 turns Secondary, 4 turns each.
RF C1	Ferrite Bead	FB 43-101 or equiv
D1	1N914	Silicon diode
Q1		NPN RF low power transistor such as 2SC1306 from an old CB
R1		10K 1/4 watt resistor (for very low power use 270k and a BC549 for Q1)
Y2	3.58MHz?	80m Fundamental cut crystal

ar

COLUMN 73

With John Aarsse VK4QA

The March 1999 edition of "Electron" the official journal of VERON, the Amateur Organisation in the Netherlands contains some very disturbing news.

An interesting, but damaging, proposal by a member of the European Union Parliament, a Mr Gianni Tamino, seeks to limit the maximum allowable electric field strength to 1 V/m. He proposes this to guard the European population against possible harmful effects from non-ionising radiation.

Non-Ionising Radiation is an electro-magnetic radiation the frequency of which is too low to be able to ionise an atom. This covers the whole radio spectrum, thus also the amateur radio frequencies.

Compared to ionising radiation such as Roentgen and gamma radiations, the non-ionisation type is relatively safe and innocent. About the only proven effects on the human body are currents and some heating effects. Above 100 kHz this is fairly important, especially at GHz frequencies. A microwave oven is an example of this heating effect.

A number of countries have rules requiring owners of radio transmitters to minimise or even prevent the risks of possible dangerous radiation to the general populace, specifically the electro-magnetic radiation from the transmitters.

So, where do the European Amateurs stand? If they have to adhere to Mr Tamino's proposals, on shaky ground. A computer model has shown that, to achieve these proposals, the amateurs will have to operate with an effective radiated power as low as 10 Watts! A bit low to work worthwhile DX, especially in competition with stations from other countries where these rules do not apply.

Mr Tamino represents the Italian Green Party in the European Parliament and he is now charged by that institution to write a final report.

Needless to say that everybody associated with anything that radiates electro-magnetic energy, is awaiting this report with a bated breath.

Lets hope that his Australian colleagues don't try the same thing here although something similar was recently tried here in Maleny, Queensland with a cellular phone tower.

They lost to more influential powers - this time!

73 for now, VK4QA

ar

SPOTLIGHT on SWLing

by Robin L. Harwood VK7RH
5 Helen Street, Newstead Tasmania 7250 (03)
6344 2324 E-mail: robroy@tassie.net.au

When hostilities commenced in the Balkans, an immediate radio war broke out over short wave.

JUST A FORTNIGHT BEFORE Easter, the situation in the Balkans, which was rapidly deteriorating, sharply escalated when NATO commenced to bomb Yugoslavia, after the failure of peace talks in Rambouillet, France.

When hostilities commenced, an immediate radio war broke out over short wave. Yugoslavia immediately expelled foreign media from the disputed province of Kosovo.

This was quickly followed by restrictions on what they could report from Yugoslavia. Also what independent media remained within Serbia was quickly silenced. The famous B92 FM station which was the voice of the Serbian opposition just a few years ago, was yanked off the air and was reduced to sending out bulletins over the Internet with text or live audio.

This too came to an abrupt end with most ISP's within Serbia being placed under government control and censorship.

Just after the NATO air offensive commenced, a huge tidal wave of refugees were emptied out of Kosovo, apparently at the instigation of the Serbian military and paramilitary troops. As I write this, just under a million refugees had escaped into neighboring countries such as Macedonia, Albania and the semi-autonomous Yugoslav province of Montenegro. As a result, NATO further escalated the air offensive.

Listeners in Europe are in a better position to monitor developments in this crisis than we are here in the Southern Hemisphere.

Although much of the activity is on UHF or via military satellite, some HF activity has been noted, especially with air reinforcements being heard over the North Atlantic on civilian air traffic control circuits. The huge B52 and B1 Stealth bombers have been heard going through civil air controllers in the UK and Europe.

The major US military HF channel of 11175 kHz was briefly jammed at the commencement of the Air offensive with unknown operators speaking in heavily accented English with frequent expletives. It is believed however that these were civilians,pro-Serb and in Western Europe.

Those in Serbia with satellite television, I should expect, will have their gear confiscated. The domestic media is tightly controlled and the Internet has also been placed under further restriction. It now appears increasingly likely that this crisis will be prolonged with the war of words continuing, primarily over short wave.

If you are interested in following developments, here are some frequencies of Balkan nations broadcasting in English.

Croatia: Hvartski Radio, Croatia from Zagreb. This broadcast ironically comes via senders in Juelich, Germany. There is a short 5-minute English news bulletin just at the commencement of their Croatian programming at 0500, 0600, 0700, 0800 UTC. The announcer is usually an Australian Croatian. The frequency is 13820 kHz.

Albania: This poor nation has been receiving the brunt of the Kosovo refugees. Radio Tirana was easily to hear in the 60's and 70's when they were broadcasting over amateur allocations, particularly on 14320 kHz but now they are infrequently heard. The latest schedule I have is at 0145-0200 UTC on 6115 kHz and 7160 kHz repeated at 0230 to 0300.

From 1915-1930 UTC it is on 7180 and 9510 kHz. At 2130-2200 UTC it is on 7160, and 9635 kHz, the latter beamed to Australasia.

Yugoslavia: This is being heard here at 0430 UTC on 9580 kHz broadcasting to the American west coast in English with some flutter. Their senders are in the Serbian enclave of Bosnia-Herzegovina.

Their transmissions to Australia are curiously at 1900 UTC, that is 5 am here locally. They are on 7230 till 1930. However the transmission to Europe would be better at 2100-2130 UTC on 6100 and 6185 kHz.

Bulgaria: I am hearing the German service very clearly at 0500 UTC on 12000 kHz and usually after the English service to North America.

Greece: 9425 and 9375 kHz are regulars here in the mid to late afternoons from Athens. The broadcasts are in Greek but there is sometimes a ten-minute English news bulletin at the end of the transmissions.

Turkey: Try 17705 or 21735 kHz. The latter is a relay of the domestic service in Turkish and is extremely strong here from 0400 UTC until 1200 UTC.

17705 used to have English to North America and Asia at 0300 UTC yet I haven't heard it of late.

The BBC World Service is perhaps the best for balanced coverage of continuing developments. There has been an increase of news and current affairs of late from London. Here are the latest channels for the World Service to Australia up until the 30th of October.

5975	2000-2200
7145	0600-0800
9660	2200-2300 **
9740	1100-1600; 1800-2200
11765	0900-1100
11955	0500-0900; 2200-2400
12080	2200-2300 **
15360	0700-0915.

** via Brandon (QLD) to PNG and the SW Pacific

Although not targeted to Australia, I hear the transmissions to South Asia on 17790 from 0030 till 0200 UTC. When it commences, it is subject to multipath echoes yet it is quite acceptable after 0100. I presume it is from the Kranji site in Singapore.

I have seen a press release announcing the sale this month of the National Transmission Authority (NTA) to a UK consortium which handles the Independent Broadcasting Authority's radio and television senders in Great Britain. Senator Alston mentioned a price of about 630 million dollars for all the domestic senders of radio and television and including the Shepparton , Brandon and Darwin HF broadcasting sites of Radio Australia. I wonder if Darwin will be reactivated and now that it is privatized, be available in a similar manner to Merlin and Deutsche Telekom, which now carry programming on a commercial basis.

Incidentally Merlin Network One is extremely strong on 13720 kHz from 0600 till 0900, beamed to Australia. This is a commercial British station with frequent advertisements of British businesses. I do not know where they are broadcasting from but I have seen that it is from the UK. Remember Merlin was a management buyout of the BBC external senders and is a commercial operation.Well that is all for this month. Keep your ears open because there is still plenty to hear over short wave!

73,

Robin L. Harwood VK7RH

ar

AMSAT AUSTRALIA

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Earth-imaging with Amateur Radio Satellites.

UoSat-1, UoSat-Oscar-9, UO-9 was built at the University of Surrey, England and launched in October 1981. Oscar-9 was an educational satellite. It was aimed squarely at physics classroom instruction.

It was widely used at University, College and Secondary School level. In addition to many data acquisition devices designed to allow further study in the lab and classroom, UO-9 carried on board a device that was at that time virtually unknown in the wider community. CCD cameras were in the realm of the guru in 1981.

No world-wide standards had been developed as they are today. Even the ATV and amateur SSTV adherents were still using Vidicon type technology. Nowadays CCDs are available from every discount electrical store in the form of cheap hand held video cameras. They are used on the world's greatest astronomical telescopes.

They have revolutionised the way we take pictures. UO-9 did not carry a transponder or repeater as we have come to expect of amateur satellites today. In fact it was a scientific satellite rather than a true amateur satellite. It did however, courtesy of Dr Martin Sweeting G3IOR, have a downlink transmitter and beacon in the 2 metre amateur band and image data was transmitted as part of the telemetry downstream.

Come to think of it ... much of the digital satellite work we enjoy today came about because of Martin and his dual roles as head of the then embryonic Satellite Engineering section of the Electrical Engineering department at Surrey ... and active radio amateur.

This new imaging capability was all very advanced technology at the time and it caught the general amateur fraternity on the hop. It was still in the experimental stage in commercial satellite practice. Virtually no-one had the ability to work with this type of data and the pictures were largely a mystery.

One or two of my friends actually wrote their own software to allow picture acquisition using the simple CP/M computers of the day like Sinclairs, BBC Acorns and MicroBees. These were the days before hard drives became available for storage. Monochrome screens were the order of the day.

The pictures were printed out on heat sensitive paper using early thermal printers. How things have changed. An amateur radio satellite would not seem complete these days without earth-imaging capability and many amateur radio shacks have fast modern computers as part of the normal day to day equipment on the bench. So what then is this earth-imaging business all about?

First, a quick look at the NOAAs.

Although they are not the only commercial earth-imaging satellites by a long way, the NOAAs are the most widely known among the amateur community. Many amateurs regularly collect weather images from them as they pass over each day. The acronym NOAA stands for **N**ational **O**ceanic and **A**tmospheric **A**dministration.

One of NOAA's responsibilities is the provision of cloud images to aid in weather forecasting. There are lots of special purpose commercial earth-imaging satellites like LandSat, SeaSat, SPOT, GMS etc. etc. They all have a prime purpose. Land usage detail, sea surface temperature and height etc. They require specialised receiving and decoding equipment and the really useful images ... well; you have to pay for them!

They are after all in the business of earth-imaging. The NOAAs have a "free-to-air" low-resolution downlink and it's this that most amateurs would receive and decode. The pictures have a resolution of about 4 km per pixel and this is enough to give excellent cloud pictures (their primary purpose) and quite good ground detail. Surprisingly you can sometimes even pick out the warm trails left by high flying jet aircraft if the atmospheric conditions are just right.

The APT transmissions as these are known, take place just above 137 MHz. This limits the transmitted bandwidth and therefore the resolution of the images. The images are transmitted as a two channel pair, each taken in a particular part of the light spectrum, usually visible light centred around yellow and near-infra-red light during the daylight hours and two different wavelengths of infra-red at night.

The NOAAs also have a "free-to-air" high resolution transmission on 1.707 GHz. Because of the greater bandwidth allowable on this frequency, a resolution of about 1 km per pixel is attainable.

They transmit 5 separate image channels plus telemetry, which is a huge amount of information to process and display. As always there is a price to pay and the down side is that this amount of information, possibly over 80 megabytes per pass, dictates the capabilities of the computer required for its subsequent decoding, image manipulation and display.

An older 386 with 16 or 32 MBytes of RAM would be struggling to cope with files of this size, and subsequent storage or archiving would be out of the question. Fortunately modern Pentium type computers with multi-gigabyte hard drives and hundreds of megabytes of RAM are becoming more common place nowadays. These machines are ideal for this type of work and make it look easy.

National co-ordinator:

Graham Ratcliff VK5AGR
Email: vk5agr@amsat.org

AMSAT Australia net:

The AMSAT-Australia net is held on 80 or 40 meters LSB each Sunday evening. During daylight saving time in South Australia the net is on 7068 kHz +/- QRM with an official start time of 09000utc (with early check-ins at 0845utc), during the rest of the year the net is on 3685 kHz +/- QRM with an official start time 1000utc (with early check-ins at 0945utc).

AMSAT Australia newsletter and software service:

The newsletter is published monthly by Graham VK5AGR. Subscription is $30 for Australia, $35 for New Zealand and $40 for other countries by AIRMAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia
GPO Box 2141
Adelaide SA 5001

Keplerian Elements.

Current keps are available from the Internet by accessing the AMSAT FTP site, ftp.amsat.org and following the sub-directories to "KEPS".

So, what about amateur radio satellite imaging?

As I hinted in the opening paragraph, Amateur radio satellite imaging has been around for a long time. It had become more refined over the years and the current batch of satellites can produce excellent pictures of the Earth from low-earth orbit, ie. 500-1000 km. P3D will be able to give us spectacular views of Earth from 40 000+ km away. I haven't studied the projected orbit from an astronomical point of view but wouldn't it be great to see an image of the Earth from P3D with the Moon in the background?

Amateur radio satellite imaging differs from the NOAA system in one fundamental way. The imaging device on the NOAAs could not be described as a "camera" as such. It consists (very basically) of a rotating prism, a lens system including light path splitters and a series of optical sensors that collect the data at different light wavelengths.

It does not "take a snapshot" in the way a normal camera does. The system is on all the time. The rotation of the prism scans across the Earth at right angles to the path of the satellite's orbit. On each rotation of the prism, one line of the picture is built up. The motion of the satellite ensures that the next rotation scans over a new bit of the Earth below. The "picture" is being produced line by line as the satellite orbits the Earth.

After processing it is transmitted as a continuous stream of data in real time. As the NOAA passes over your location you can see the picture being built up one line at a time as it goes over. In fact you can see precisely where the satellite is as each line is transmitted. (Despite what your tracking program might say, hi). This is not how the CCD cameras on the amateur radio satellites operate. They work much more like a normal snapshot camera. They are commanded to take a picture in the same way you would with a digital snapshot camera.

The image file is stored in RAM and processed, usually into a compressed file for transmission as part of the downlink broadcast data stream. Once again, you don't get something for nothing. Just as the frequency in use limits the possible bandwidth, the bandwidth ultimately determines the maximum image file size that can be handled by the entire system. This is one reason why the early amateur radio satellite imaging systems had rather poor resolution.

The latest in the line of amateur radio earth-imaging satellites is TO-31. It has broken new ground in that it has a high resolution, multi-spectral CCD camera system on board. Multi-spectral means that it takes pictures not only in visible light but also in a number of infrared portions of the spectrum. These images are combined in varying proportions to produce a multitude of effects in the final image. Just like the high-resolution NOAA images.

File sizes can be large and compression invariably results in some loss of resolution. The University of Surrey has developed a compression technique that minimises the losses. The images are transmitted at the moment as compressed files of about 700+kilobytes.

This results in reasonable compromise between download times at 9600 baud and picture resolution. The situation will improve markedly when the 38k4 baud downlink is activated some time in the future. It is hoped that this download rate will be fast enough to allow the image files to be broadcast in uncompressed form permitting the full resolution to be seen in the final image.

The current system of compressed files is giving images which can better the NOAAs free to air APT pictures and occasionally rival the high resolution HRPT images. There are exciting prospects ahead in the field of amateur radio earth-imaging.

The commercial decoding and image manipulation software is closely guarded by the commercial companies. We are fortunate to have devoted programmers like Colin Hurst VK5HI. Colin has been active in the field of imaging software development since the very early days of amateur radio satellite imaging. His latest effort has swept all others away to become the 'industry standard' for amateur radio satellite image processing. Called **"CCD Display 97"**, it is a 32 bit, Windows9x program and caters specifically for the picture formats which have become standard on the amateur radio satellites which carry imaging equipment today. Colin has done a remarkable job to continually update this software from his first DOS versions that served us so well in the early days of satellite imaging.

Current amateur radio satellites with earth-imaging capability.

Although launched in 1984, **UoSat-2, Oscar-11** is still fully operational. This in itself is something of a record. Bravo Martin and company. Just think of how many devices you have on your workbench which have been CONSTANTLY switched on and operating for over 15 years! - with barely a hitch. The CCD camera on UO-11 is rarely turned on these days because the command team has other more pressing work to do.

WeberSat, WO-18 has suffered from progressively worse OBC problems and is currently not working. Its CCD camera provided some excellent images in its early days. The three 9600 baud digital birds, **UO-22, KO-23 and KO-25** carry CCD cameras that are turned on from time to time and the images are included in the download directories. **Tmsat-1, TO-31** is the current flagship of the imaging fleet. New images are added to the directory once or twice a week. Many spectacular images have been obtained using the high resolution, multi-spectral cameras.

Entry level image capture using simple AR equipment?

So, how much of this is still in the realm of the guru and how easy is it to get going with simpler equipment? Well ... don't bother to read any further if you are expecting to do this type of work with 1950s valve technology or an FM box, ground plane antenna and packet TNC.

I'd be misleading you if I said you could. Unlike Mr Spock in "Star Trek" who managed to get a time warp machine going with valves from old radios when they were marooned in the 1920s, I'm afraid you won't get off the ground.

You will need a capable modern computer with lots of RAM and a capacious hard drive. You will need to have tracking antennas or at least a high gain steerable system unless you live in a super-quiet location on a hilltop and you can produce an efficient all-sky antenna.

You will need sensitive 2 metre and 70cm receivers preferably with mast-head pre-amps. Then there's the demodulator and of course you will need the appropriate software for manipulation of the images after capture. But if you already have a shack equipped to cope with the current batch of digital satellites then imaging is almost the next logical step and it can be an immensely satisfying activity.

If you have a well equipped, high speed, multi-mode packet station and a good high gain antenna system you are well on the way. There are Internet web sites which archive amateur radio satellite images. I'm loath to put their URLs in print as they come and go like the wind. The best bet would be to start out at the AMSAT web site, www.amsat.org and follow the links from there. Who knows, you may be imbued with the 'esprit de corps' and perhaps even give this earth-imaging caper a go yourself.

ar

Greek Call Sign

The prefix SV, allocated to Greece, has its origins even before World War 1. The Bureau International de L'Union Telegraphique of Berne had allocated in 1913 the prefix block SVA-SZZ to Greek ships and land-based stations.

Early radio experimenters frequently used such prefixes for their own despite the fact that many operated without a licence. Years later when laws were passed to permit radio experimentation many of these old prefixes were adopted into the new field of licensed radio experimentation.

The SV allocation to Greece remained unmodified as did Belgium (ON), Chile (CO), Denmark (OZ), Japan (J) and several others.

But many of the old prefixes were never used, such as those of England (B), British Columbia (CAA-CMZ), Brazil (EPA-EZZ) and Sweden (SA).

It is interesting to note that some of the old prefixes, although unused by amateurs for 80 years, have been recently 'resurrected'. Thus we have today the new allocations of M (England), OT (Belgium), LH (Norway) and CR (Portugal).

When on 1 February 1927 the IARU (International Amateur Radio Union) allocated 'intermediated' prefixes, the precursors of modern day prefixes to various countries, Greece received the intermediate EY, the letter E standing for Europe and the Y being an individual country allocation.

(Australia at the same time received OA, and New Zealand the intermediate OZ, the letter O standing for Oceania).

These facts would seem to indicate that there could well have been experimental radio activity from Greece during this period.

It is interesting to read the following extract about Greece in the October 1936 edition of QST:

"Like Italy, the Government does not licence amateurs.

Unlike Italy, however, it is less energetic in their suppression. Consequently the few amateurs who are now, after these many years, first putting Greece on the map, operate only more or less under cover."

SV1KE

This QSL is the earliest Greek QSL held by the National QSL Collection and is dated 22 November 1936.

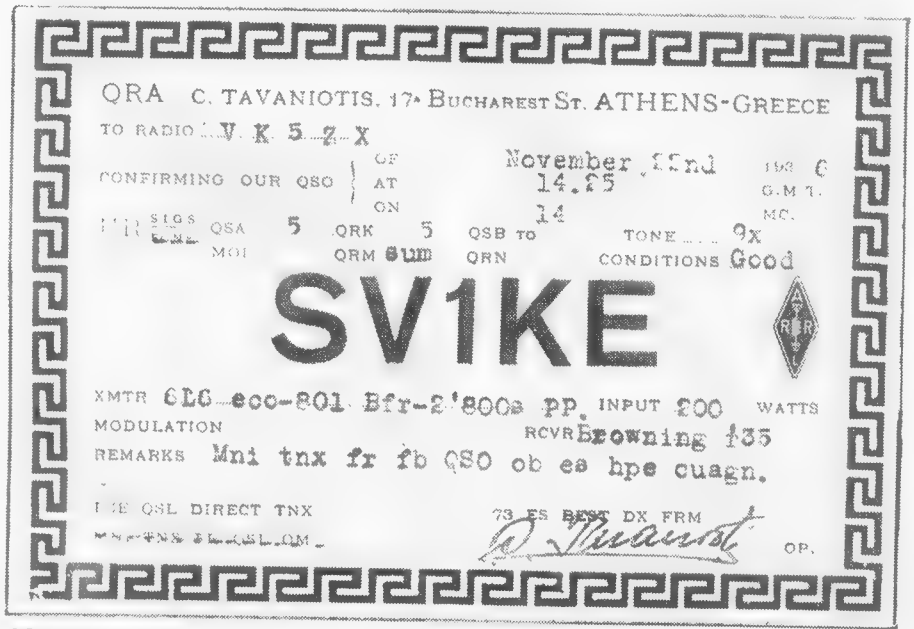
The operator was C. Tavaniotis of Athens. On the reverse side of another pre-war QSL, SV1RX, (dated 27 December 1937), this name appears as the QSL Manager for Greece.

The SV prefix was many years the only prefix used, although there was some activity by British servicemen and officials belonging to AMFOGE (Allied Mission for the observation of Greek elections) during the troubled early post-war period.

These stations used the call-sign XAAP, XACP. (The WIA Collection holds the QSL XABU sent during this stormy period from the island of Rhodes).

Mr Tavaniotis must have been a man of some exception.

In the April 1939 issue of QST we read that the issue of licences was not likely, the apparent reason being the general censorship of the press in Greece, and then "SV1KE holds the only licence but cooperates with Government agencies".



QRA C. TAVANIOTIS. 17 BUCHAREST ST. ATHENS-GREECE

TO RADIO W. K. 5 Z X

CONFIRMING OUR QSO OF AT ON November 22nd 14.25 14 1936 G.M.T. MC.

QSA 5 QRK 5 QSB TO TONE 9x

QRM 8um QRN CONDITIONS Good

SV1KE

XMTR 6L6-eco-801 Bfr-2'800a pp. INPUT 200 WATTS

MODULATION RCVR Browning 135

REMARKS Mni tnx fr fb QSO ob es hpe cuagn.

PSE QSL DIRECT TNX

73 ES BEST DX FRM OP.

SV0VOA

Greek SV prefixes reflect the various geographical regions of Greece.

Prefixes SV1, 2, 3, 4, 6 and 8 represent the Greek mainland whilst prefixes SV5 represent the Dodecanese and SV9 Crete. (The zero prefix is a special allocation, the QSL shown celebrating the 50th **anniversary of the Voice of America station in Greece).**

The prefixes used by Greek radio amateurs have become quite varied since the 1970s.

Prefix SZ zero has been used since 1970 for competitions such as the Chess Olympiad and the CQWW WPX contests.

It is interesting to note that the prefix SZ was one of two call-signs allocated to ships and land-based stations before World War 1, but was never used by radio amateurs until comparatively recently. Greek amateurs were allowed to use the prefix SW to celebrate in 1985 the 2300 years of Thessaloniki, and the special prefix SW zero was used to celebrate the 1980 Summer Olympics.

In 1978 the ITU allocated an entirely new prefix to Greece and its adjacent islands.

This was J4A-J4Z, and it has been used several times, especially for special events (J42TIF, 50th Thessaloniki International Fair), J41JG (WPX contest) J40AN and J41NA (1982 European Athletic Championships).

SX1RAAG

This QSL bearing yet another kind of prefix and dated 30 April 1988 celebrated the 30th anniversary of the Radio Amateurs Association of Greece (RAAG).

On the reverse side of the card a short history of radio activity from Greece is given, together with the fact that the formation of a radio club was deemed impossible in those early years due to political problems.

The EEP on the front of the QSL stands for Enosi Elinon Radioerasitechnon, the official Greek amateur radio society, bearing in mind that the letter R is written as a P in the Greek language.

There seems to be little new under the sun, for despite being a new prefix, the SX prefix was used as early as 1936 but of course not officially on the amateur bands. In the May 1936 edition of the magazine Radio we: "Charlie Myers, W3SI worked SX3A in Greece on 7mc. QRA is Direction Services Radiotelegraphiques de la Marine, Athens, Greece". In the October 1936 edition of QST mention is made of the same station. It was reported as a Government-owned marine experimental station with 250-500w output, wavelengths between 15 and 90 metres being used and the operator working hams on 20m. The wheel has turned full circle even after sixty years.

THANKS

The Federal body of the WIA would like to express its thanks to the following for their kind donation of QSL cards towards the collection:

'Snow' VK3MR
Ken VK3WM courtesy of Herb VK3J0
Steve VK2PS
Jo VK2KAA
Peter VK3XK courtesy of Geoff VK3CNX
Lindsay VK5GZ
Ivor VK3XB
Ray VK3JI
Heinz WIA L. 40370

Also thanks to the relatives and friends of the following SKs:

Ken Stevens VK5QW. Courtesy of John VK5FOX
Gavin Douglas VK3YK. Courtesy of Geoff VK3CNX
Syd Keighley VK3DSP
Ken Elkington VK2CBI. Courtesy of David VK2IX

("Willing" your QSL collection to the WIA or your local club will help preserve our history. Think how many historically significant QSL cards have been lost through having nobody to pass them to, or passing them to an uninterested party.)

ar

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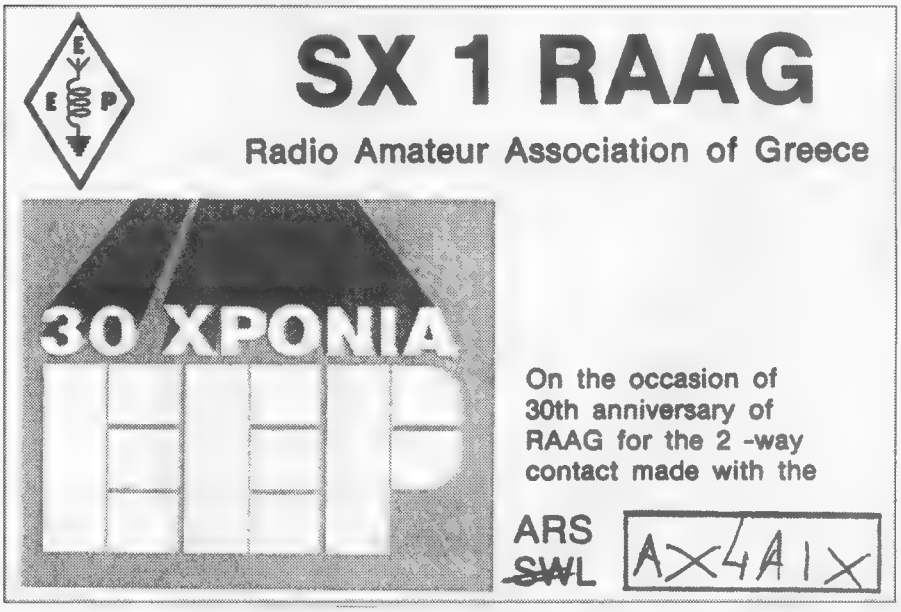
SX 1 RAAG
Radio Amateur Association of Greece
30 XPONIA
On the occasion of 30th anniversary of RAAG for the 2 -way contact made with the
ARS
SWL
AX4A1X

If you have a QSL card with a story and we can borrow a copy it would make a great illustrated yarn for

Amateur Radio

ARDF

Ron Graham VK4BRG
PO Box 323
Sarina Qld 4737

In the column this month we discuss some aspects of simple receiver arrangements that could be suitable for ARDF.

Obviously, if we can utilise an inexpensive or existing receiver more people are in a position to try ARDF. Then, if they find some aspects of ARDF of interest they can possibly upgrade to a more elaborate receiver.

The receiving device that falls into the above category, provided you have one of course, is the handy talkie (HT).

Another common device that should not be overlooked, and whose capabilities parallel the HT, is the portable scanner.

Pros and Cons of HT'S

Advantages:

a) good sensitivity - this is an advantage in that weak signals, such as at the start of a hunt, may be heard.

b) Phase Locked Loop (PLL) tuning - which gives the advantage of stable, fixed tuning with an excellent frequency readout.

c) tunes the whole band (due to the PLL tuning) - not always achievable with some ARDF receiver designs.

d) may include an S meter - handy, particularly as with FM, the meter can indicate changes in signal strength that are not discernible by ear.

Disadvantages:

a) FM - this problem is caused by the inherent FM receiver design, in that one or more stages of (normally) the IF strip are operated as limiters. These stages are driven to saturation primarily to remove any AM modulation. This means that any changes of signal strength, which need to be observed as a basic requirement of direction finding, are masked by this limiting action.

b) no inherent directivity - due to the simple vertical antenna.

c) poor shielding - the problem here is that as one gets closer to the source of the signal and that signal gets stronger, it tends to enter the HT's input circuitry directly. Thus, as the signal is not passing via the optionally added beam antenna, that antenna's directional properties cannot be utilised - fairly basic requirement for direction finding!

d) no RF gain control.

OVERCOMING THESE DISADVANTAGES.

In respect to:

a) the limiting problem may be overcome by operating the receiver with weak input signals and thus below where the limiting action takes place.

For practical purposes, this means reducing the input signal until it appears noisy in the receiver output. This may be achieved by:

b) inherent directivity can be improved by:

1. tuning the receiver off centre until the signal is sufficiently noisy.
2. Using an adjustable attenuator between the antenna and radio.
3. inserting the HT in a metal tube.
4. Using an ARDF converter.

Lack of directivity is simply overcome by:

1. using a directional antenna.
2. body shielding using existing HT antenna.

c) the poor shielding problem may be overcome by:

1. using an ARDF converter.
2. adding shielding (possibly aluminium foil) around the radio.

This could be "messy" and facilities have to be made to operate the radio through the shielding.d) the lack of a RF gain control tends to be overcome by a number of the above.

Anything that is capable of reducing the signal input to the receiver is actually acting as a RF gain control. I have seen RF attenuators fitted between the beam and the radio, but this is only effective if the radio is shielded well enough to prevent direct signal entry into its input circuitry. As previously mentioned, the modern plastic cased HT's are not well shielded.

So we notice that a number of the disadvantages of using the HT receiver for ARDF can be largely overcome. Also, from the above there emerges a common thread, the ARDF converter. This device, described below, is also often described as an "attenuator". But this description, although describing the actual effect, is somewhat misleading. These devices seem reasonably popular in the US, but not so here in Australia. Hopefully, in a later column, some circuits and construction details will be described.

Some comments on "body shielding" and using a metal tube to attenuate signals will also be covered in a future column. These techniques seem more popular in the US, so I have gained some information from that source.

ARDF CONVERTERS

These devices actually shift the input frequency by a pre-determined amount.

Thus the "lack of shielding" problem is overcome as the HT is actually tuned to a frequency removed from the fox frequency. They consist of an oscillator, the frequency of which determines the offset, and a mixer stage. The output of the oscillator stage is varied by an external control.

This control varies the oscillator injection into the mixer stage and thus forms an attenuator control. So this attenuator function allow one to operate the HT's FM receiver below the limiting level and takes the place of an RF gain control which is missing from the HT.

SERG (Mt. GAMBIER) EVENT.

The South East Radio Group, VK5SR, will be sponsoring the 1999 Annual convention and Foxhunting Championships on 12-13th June 1999 (Queens Birthday Weekend) at Mt. Gambier. The venue will be the A&H HALL, Pick Avenue, Mount Gambia as on previous years.

As a joint initiative with SARC Adelaide, a

***** NEW NOVICE FOXHUNT EVENT *****

is planned to encourage new interest in this aspect of the hobby. It is realised that the complexity of many current foxhunting stations almost precludes participation by newcomers to ARDF.

For safety reasons all participants for the night Fox-Hunting events this year will be required to be contactable throughout the event via the local 2m repeater. Participants must organise a separate transceiver for this purpose before commencing the hunt.

Full details of the foxhunt schedule will be posted at the SERG Internet site:- http://www.seol.net.au/serg

Talk in to convention will be via VK5RMG repeater 146.900 MHz. Further details from the Convention Coordinator, Wayne, VK5ZX. e-mail vk5zx@seol.net.au Packet vk5zx@vk5sr. Phone/fax (08) 8725 4335

ar

REPEATER LINK

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More on Repeater channels

I received this comment from Steve VK2KFJ a couple of months back and it makes for interesting reading in relation to the 10 kHz spacing idea on 2 metres.

Steve travels a lot and his experiences of the lack of activity on our repeater networks, queries why we appear to have an overcrowding situation and need more 2 metre repeater channels.

Steve VK2KFJ says...

I read your article on 10kHz spacing for 2 metres and had to laugh. I live in Sydney with the largest population and large neighbours in Wollongong, Gosford and Newcastle.

Sydney has a bucket load of 2m repeaters, plus 70cm repeaters.

Unfortunately, most of these spend 95% of the 24 hour day in complete silence.

I am a computer support technician and travel interstate a lot by car and plane. I have visited all capital cities (except Darwin) for work, and I take my handheld interstate.

In the car I have 6m/2m/70cm as I travel NSW and Canberra, so I get a lot of time to scan.

Over the last decade I have seen a dramatic decline in repeater usage, not just Sydney, but NSW country and interstate.

Having travelled to the USA, I can totally understand why the USA has closer spacing due to their population, plus they live right next door to Canada and Mexico.

For us, to try and squeeze more 2 metre repeater channels in, while we don't use` what we have now, does not make sense.

I would love to have several million dollars, to install equipment on every hill 60 kms apart and link them together.

Then I could drive up and down any major highway and still be in reach of a repeater; but if I call CQ, do you think I have a greater chance of working someone?

With that several million dollars, I could better spend it on a heap of satellite phones and hand them out to my friends, it will work anywhere I go in the world.

So, you can see why I have E mailed you before, about trying to do things like linking our 2m, 70cm, 6m and 10m together, just to create some more activity.

In the previous summer I remember 6m being open. My 6m FM set was scanning the 6m repeaters, and one day a VK7 called on a VK4 repeater; I answered him.

We had a chat, and when we ended our contact he called again, expecting someone from VK4 (it was a Brisbane 6m repeater, linked to their 70cm repeater) to answer.

This was 5pm and not a single response. I went looking around and found 2 repeaters in VK4 and one in VK5 and VK3, all on 6m and all at full scale.

I called on each over an hour with not a single contact, only the VK7 amateur again.

A couple of months later, I was on the Gold Coast and called on the 70cm repeater and received no replies.

I eventually found amateurs on their 2m repeater and asked "do they monitor the linked 6m/70cm system?" "

No" was the reply, "we all stay on 2 metres."

So why go to the bother of linking the 6m and 70cm repeaters together?

The NSW Division of WIA is now generating a project of installing 70cm repeaters into country NSW and linking them altogether.

This was when we thought we might lose 70cm for the Olympics and the future. Even though we won't lose the 70cm band, it did make people think about getting some use on it.

Instead, the commercial spectrum developers just see a deep null on their spectrum analysers between 420 - 450 MHz.

Our club is going to start relaying our divisional broadcast through our local repeaters, starting with 70cm.

70cm is our least used repeater, out of 6, 2 & 70. If everything goes fine, we may introduce 6m into the relay, so it may then be 6 & 70 getting some use, once we sort out our Novice filter problem.

We will start by linking our 6 & 70 repeaters together, then the 10m simplex (once it's finished).

My choice was to tie the four of them together permanently and be done with it, but some people in our club prefer to have one of our 4 repeaters left as standalone, which is a shame, as it is our 2m repeater that is regularly used.

So, if someone is pressuring to get extra 2m repeater channels, I would like to know where they are, as I have been to Melbourne last month, Canberra, Brisbane and the Gold Coast during the last 12 months.

I didn't see any significant activity in any of those capital cities, as I said earlier.

Most 2m repeaters in these places mentioned were quiet 90% of daylight hours and 70cm repeaters 97% of the time. The same applies for the FM simplex frequencies as well.

We have four 70cm repeaters here linked permanently, Wollongong, Goulburn, Mittagong and Mt Ginini (ACT).

A 5th one is due on the NSW South coast in the future. It was busy when first setup, but now much quieter, as the enthusiasm dampens. Ideally as you can see, we need more 70cm repeaters pressed into action and linked, plus a few 6m repeaters as well.

"Get off two metres and onto 70cm" are my thoughts..

Activity in VK6

Thanks Steve for your thoughts.

The lack of activity is mirrored in VK6 on our repeater networks.

Linking repeaters does increase the activity for a while and then interest tapers off.

Amateurs seem to be divided into two camps when it comes to linking repeaters.

One camp thinks it is a good idea and the other camp sees it as an intrusion onto their local repeater from afar.

REPEATER LINK *continues*

I find this second opinion strange as it is not unusual to hear comment from amateurs on repeaters complaining about the lack of activity. However as soon as linking is suggested, caution is expressed, as this would see a type of activity that may not be suitable on their local repeater.

A strange point of view as the increased activity is fellow amateurs. Some users I believe want their repeater to be just that, their own "private telephone" to one or two close amateur friends.

Time

Finding time to put this article together every month is difficult.

Much time had to be found to rebuild one of my computers after lightning damage following a very severe storm. Switching on resulted in difficulty loading Windows, with error messages about the C drive.

Further investigation uncovered there was something seriously wrong with the computer. Time to save onto floppy a few un-backuped files.

The floppy drive did not work! As time went on I discovered not much did work. Devices discovered to be faulty were the sound card, floppy drive, C:\ drive more or less, mouse, Com 2, printer port and printer!

Luckily most of my files were on the D drive with the operating system and programs on the C drive. I just hoped the D drive was still working.

The computer was delivered to a repair shop and the house insurance picked up the bill. When I received the computer back the D drive was undamaged and little was lost except time. More time was required to reload all the programs and drivers for printers and scanners etc. At times a very frustrating experience.

I could go on about the frustration I have with computers and the strange way they behave but I will save that for another time.

Historical Photographs

Progress is being made towards digitising amateur radio historical photographs.

A few have been received and can be seen on the Internet. A link can be found from the VK6 home page at: http://www.faroc.com.au/~vk6wia or go direct to the page at: http://www.omen.net.au/~vk6wia.

I have been in contact with our local VK6 WIA historian and the Federal WIA historian and considerable interest was shown with promises of photographs.

I look forward to you also going through your photographs and digging out a few.

ar

VHF UHF AN EXPANDING WORLD

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All times are UTC

New 2400 MHz Record

A contact between Doug Friend VK4OE/p and Adrian Pollock VK2FZ/4 has broken the VK2 state record for 2.4 GHz set by VK2ZAC and VK2BDN in 1973.

This contact also breaks the previous VK4 State record set by Doug and Adrian in January 1996.

Adrian was operating from Maleny and Doug portable near Ben Lomond in northern NSW on 15/11/98, distance 374.7 km.

Also, re the national 1296 MHz record: The original distance calculating software has been replaced by a more accurate program, and all records set before the changeover have been recalculated.

The 1296 MHz record distance (VK6WG - VK3ZBJ) has been corrected to 2455.1 km.

This correction didn't make it into the last Call Book but it will be in all future lists. ... John VK3KWA.

Six metres

Ian VK5XE reports: *On 21/3 I worked 13 JAs on six metres CW. All were from JA7 and 8 areas.*

Also heard were 7J1s, and a KH7 talking to a JA8 on SSB. Rig is IC 736 with 100 watts and using my HF log periodic (7el) through the auto tuner in the rig.

Wally VK4DO - 9/3: 2213 XE2UZL/b 4x5; 10/3: 1022 V63CV Rosrae Island 5x9; 11/3: 0430 XE2UZL/b 5x1, 0447 XE3RCM/b 4x1. The two KH6 beacons came in at the same time.

"I have been trying for a long time to work out the actual location of the Chinese TV on 49.750 and am now convinced it is from Harbin in North China.

On 11/3 I was receiving one predominant TV picture from China which came over the weaker one, and by zero beating on the IC 7100 (USB and LSB) came to the conclusion it was on 49.750 MHz.

On 12/3 at 0950 the sound channel on 56.250 was at good strength, with two announcers, male and female, talking in Chinese.

At the time the 49.750 video was S9+.

Here at Strathdickie QG49hq, 50.110 is a minefield; when the band is open it is full of VK2s, VK3s, JAs, KH6s plus VK and Chinese TV crud.

The number of stations staying there for long periods working JA after JA on CW is beyond belief.

However, I have noticed many JAs calling on 50.110 and saying they will be listening on 50.160, which seems a good idea.

The main problem is that there are so many JAs calling that despite saying you are calling east to the US, they persist in calling you."

John VK4KK from Brisbane made a number of interesting contacts.

On 10/3 at 2225 W1LP/mm in EK94; 19/3 0730 KH7U, NH6YK, KH7L; 20/3 2148 HP2CWB; 27/3 0330 T33RD (CW and SSB) and 2/4 0335 V63AO 5x9.

Many contacts to JAs and HL5 also available.

The W1LP/mm contact is interesting as EK94 is off the West Coast of Nicaragua and a considerable distance.

A mass of information is appearing on the ***JA 50 MHz cluster,*** too numerous for a blow-by-blow description.

However, what follows is a representative sample.

From 9/3 to 15/3 the JAs worked V63CP, 3D2TC, V73AT, P29NB, 5W1SA, VK1-8, ZL1-4, KH7R, VR2UW, VR2YRC, VR2LC, VR2UP, VR2RS, VR2BG, DU1/JA1HBC, VR2JK, VR2PM, V63AO, BG7OH, VR2BA, VR2XRW, VR2ZGD, VR2LX, VR2XTM, 9M2TO, DU1EGA, HL5HF, VQ9DX, YC1MH, DU1SAN, 9M6GY, 9M6CT, 9M2XA.

JAs heard: 9M-TV, V63CV, V63SC,

E-mail address change

Please note that my e-mail address is now changed to **<vk5lp@lm.net.au>.** This allows me to have local call access fees instead of STD charges.

V73SIX/b, VK4ABP/b, VK4ABW, VK4RIK/b, VK4TZL, VK5VF/b, VK6AOM, VK6JJ, VK6RBU/b, VK6RO, VK6RPH/b, VK6RSX/b, VK7RAE/b, VK8RAS/b, VK8VF/b, XE2UZL/b, ZL3TY.

Other contacts of interest were 9M2NK and VR2LC to VQ9QM; KH7R to P29KFS; V73AT to KH7R, P29KFS; ZL2KT heard XE1KK/b; HL5XF to VK2QF and VK3s AMK, AWY, XQ, OT; ZL3TIC to VK1VP, VK0YQS/9, W5OZI, W1LP/mm; VR2LC to 5W1SA; HL1LTC to VK3SIX; JAs to KH2/JF2VNV; YC0UVO to 9M6GY; VK8AH to 9M6CT, 9M2JK, A61AH; VR2LC, VR2IL to 9M6GY and 9M2JKL; LU5WW to WP4O; VK8MS to KH7L; KH7L to HC2FG;

JAs were worked by VK6AOM, VK6ACY, VK3SIX, VK6RO, VK2QF, VK3ZYS, VK1VP, VK7BE, VK4BRG, VK3TMP, VK7GUN, VK2FHN, VK3AMK (also by RTTY), VK2FA, VK5AYD, VK3DQJ, VK4BLK, VK2FLI, VK4DMI, VK4IBW, VK0YQS/9, VK2DN, VK9NQ, VK9NM, VK6JJ, VK4GPS, VK4JH, VK4WDM,

Neville VK2QF said: "*That 11/3 presented a classic six metre morning in South East VK. US indicators to 40 MHz by sunrise, W1LP/mm in grid EK94 off the coast of Nicaragua (bound for Panama on an oil tanker!) was heard working ZLs at 2130.*

First two-way here at QF47pf was 2153 to Clint W1LP/mm, he was still audible at 2350. XE1KK/b audible from 2152 to 2333. Mass sporadic E has enhanced this propagation with the ZL video audible here overnight.

WP4O was heard at very low level around 2215, a 15,800 km path! Masses of VK beacons and of course QRM from Es to Es local contacts around 50.110 (yawn)...

Australian Militiary Liaison on 50.100 FMn, possibly North Queensland, 0055 to 0140.

This is legitimate; do not interfere with this operation.

At 0300, strong R1, and JA dogpile on 50.110 to VK3s. HL5XF 5x9 into southeast VK at 0305, it just goes on, can only get better!

Sunday 21/3 also a good day.

Solid TEP opening to Japan 0230 to 0430, all call areas, 50 QSOs, nothing under RST 559.

Emerging morning F2 to Central America with regular indicators to 40 MHz and beacons on 50 MHz. Interesting period ahead.

22/3: Another solid TEP opening to Japan 0150 to 0430, Hokkaido initially then south to JA1, 2, 4 and 5 call areas, 39 QSOs, nothing under 559.

HL5XF (Jin) worked 0405. V73SIX beacon in on scatter from 0243 to 0340. Masses of northern R1 video.

31/3: HL5XF, J——\JD1 Marcos Id, JR6QWW Ryuku Id, JD1BIA Ogasawara Id, BV2PU Taipei and JR6GU plus Okinawa beacon JR6YAG from 0757 to 1050 15 to 320 degrees, CW signal strength. This event is significant from the perspective of 32 degrees south lat. and the events that unfolded.

Due to a solid E's cloud access to the northern Class II TE zone was available.

With E's it can and mostly is a barrier to extended propagation by acting as either a shield or deflection to useless locations for a desired path.

Tonight (31/3) was just the opposite at 32 degrees south, the crucial element.

Okinawa beacon (6946 km) in from 0757 to 1010 up to S9; this is a rare latitude from this location.

I know it may not be significant in the north but it is at this location.

Many locals were rag chewing about the band on .120 and .140 and were commenting that other signals were unusually strong, giving a clue that broad scatter was about from the E layer.

From here northern VK4 beacons and operators were very strong early in the session; normally this is a sign that no real DX will be made.

The design error in that theory is that the Okinawa beacon was audible to a large number of VK2s judging by their comments.

In other words, the E's was conducting the signal to the "Super F mode TEP". Other indicators and longer haul to mainland Japan were down, in fact only a small number of mainlanders were worked.

Video offsets: The usual R1s around 49.750 (Chinese) but on 48.2604, 48.2505 and 48.2396 bearing around 275 degrees weak but consistent. At 1310 48.2600, 48.2498, 48.2500 and 48.2395 back in at 310 degrees.

To summarise for those who are bored:

The opening for any of the above contacts lasted from 3 minutes to less than 10, the window of opportunity is extremely small, and no-one can afford to dither with a QSO for the benefit of others!

Okinawa 6946 km, Ogasawara Id 6484 km, Marcus Id 6330 km, Taipei 7077 km. 20 years wait to work Marcus Id! Roll on Cycle 23."

A message from **Peter Scutt G3IBI** to Steve VK3SIX, reports that he has just returned to UK from A6 and spent two days with Almurr A61AH.

The local band 1 TV transmitter is on 48.248 MHz running 200 kW 24 hours a day. Audio is on 53.748 WFM.

Almurr has already worked into the Pacific area during his morning/midday time.

T33RD Banaba was worked by all and sundry from 0300 on 26/3. T33RD is the first new DXCC country into VK East Coast this cycle.

QSL OK1RD, Jaroslav Semotam; Borova 155; ZC-251 01 Ricany; Czech Republic.

Steve Stephens VK4KHQ says that nothing has changed at his shack, the six-element Yagi awaits conversion from 52 to 50 MHz in the meantime, he uses a 1/4 wave vertical and about 10 watts of SSB. On-air times are usually limited to 10 am to 3 pm local.

With this set-up he rarely works anyone from June to September! This year he has included contacts with VK9NS, YJ8UU, joined in JA dogpiles, worked all VK States and heard the V73SIX beacon. In March a two-way RTTY contact with Norm VK3DUT.

Rob VK3EK reports from his mountain at Bairnsdale that he worked HL5XF 5x4 at 0600 on 11/3. On 12/3 at 1031 50.110 was open to JA so with a CQ call and QSY to 50.125 and 45 minutes later, he had worked 7 call areas and 37 stations.

ZL on 144 and 432 MHz: 12/1: At 0830 on 146.5 FM Ian VK3ST and Rob VK3EK worked Mike ZL3TIC and Ross ZL3ADT also 5x9 on FM.

Conditions then changed so that the two ZLs were S5 and Mark ZL3AIC 5x3, all on SSB.

The propagation then moved north from Christchurch to Ray ZL2TAL 5x2 and Alan ZL2VAL 5x7 RF70 at New Plymouth. On 432.160 Ray ZL2TAL was 4x1, distance 2.309 km.

Norm VK3DUT now resides at Johnsonville QF32VE in the Gippsland area.

His neighbours are Rob VK3EK (VK3DEM) north of Bairnsdale and Warren VK3BWT at Mallacoota.

Norm has an estate of about 3.5 hectares and may eventually grow an antenna farm!

At present he runs 100 watts on six metres to a 4 element Yagi, two metres 100 watts to a bay of 4x5 Yagis and on 70 cm 15 watts to a bay of 4x11 Yagi.

On 8/11 he shared in the auroral contacts and on 18/11 the meteor contacts, these to VK2BA, VK2DN, VK2TWR, VK3WN, VK3BWT, VK4APG, VK4IC, VK4KK,

VK2FZ/4, VK5ZDS and VK7JG. A good representative coverage.

In December aside from the many Es contacts, Norm contacted TI2KD 5x2 at 0120 on 12/12 and heard V31PC weakly, at 0405 NH6YK 5x9, 0415 KH7R 5x5, 0425 KH6WV 5x9, many ZLs, VK9NS and FK8CI for several hours.

On that magic day of 19/12 ZLs, VK1,2,4,5,7,8. During a contact with Jeff VK8GF at 1020, Jeff said he had had 14 hours of two metre propagation that day! For the remainder of the month many Es contacts, ZLs and JAs.

On 3/1/99 Norm worked 56 JAs between 0432 and 0527 in all districts except 8, with most reports 5x9 or better.

On 12/1 he worked ten ZLs on two metres between 0735 and 0810, many at 5x9. On 15/1 ZL9CI 5x2 at 0825.

February was comparatively quiet with openings to VK4 and ZLs. JAs on 14/2 and 25/2.

March was more active.

JAs on 6/3, 10/3 and HL5XF at 0550.

On 12/3 from 0638 to 1119 Norm worked 72 JAs in all districts except JA8, also VK9NQ at 0735. 13/3 0245 to 0444 he worked 45 JAs in areas 1-5 and 7-0. JA dogpiles appeared again at 0640 and 1232.

More JAs on 20/3 from 0350. On 21/3 Norm reported Ray ZL2KT having worked N7CW and several W6s and W7s around 2330. 27/3 0343-0400 T33RD heard working VK2s.

Beacon news

Don VK6HK regrets to advise that the beacon installation at VK6RSX near Exmouth WA was disabled by Cyclone Vance on Monday 22/3/99.

The beacons (50.306 and 144.576 MHz) will be off air indefinitely.

Cyclone Vance was a Category 5 Cyclone with winds in excess of 250 km/hour and of intensity greater than Cyclone Tracy that wiped out Darwin in 1974.

Severe damage was done to the towns of Exmouth and Onslow.

Don also advises that a message from Bob VK6BE indicates that the VK6RTW 50 MHz beacon on 50.308 MHz is operational.

The beacon runs 10 watts to a sloping dipole. Operation is continuous.

The licensee of VK6RTW is the Southern Electronics Group in Albany. VK6RTW is also operational on 144.564 MHz with beams directed east and north from a 10 watt transmitter.

Gridsquare Standings at 18 March 1999

144MHz

VK2ZAB Gordon 56
VK3BRZ Chas 55
VK2DVZ Ross 52
VK3CY Des 45 (+3 EME)
VK2KU Guy 44
VK2FLR Mike 42 (+68 EME)
VK3EK Rob 37
VK3BDL Mike 31
VK3CAT Tony 28
VK3BJM Barry 21
VK6KZ Wally 17
VK6KZ/p Wally 16
VK2TZ Dale 16
VK3HZ/2 David 1
VK3HZ/8 David 1

432MHz

VK2ZAB Gordon 33
VK3BRZ Chas 32
VK3CY Des 23
VK3EK Rob 18
VK2DVZ Ross 17
VK3BDL Mike 15
VK2KU Guy 14
VK6KZ Wally 10
VK3BJM Barry 10
VK6KZ/p Wally 8
VK3HZ David 5
VK2TZ Dale 4
VK3HZ/2 David 2
VK3H2/8 David 1

1296MHz

VK3EK Rob 11
VK2ZAB Gordon 10
VK2DVZ Ross 9
VK6KZ/p Wally 5
VK6K2 Wally 4
VK3BRZ Chas 4
VK2KU Guy 4
VK3BDL Mike 3
VK2TZ Dale 1
VK3HZ/2 David 1
VK3BJM Barry 1

Additions, updates and requests for the guidelines to **Guy VK2KU**, <guy@mpce.mq.edu.au>, or by mail (QTHR 99).

It is interesting to note that a change of placings has occurred on 1296 MHz since the December 1998 listing.

The other two bands look interesting too. Jockeying for positions is always a worthwhile exercise!

New technology

Clarry Castle VK5KL sent a hand-written letter (rare these days) with news.

However, before adding the news, it may interest readers to know that Clarry's letter was given the distinction of probably being the first letter ever, for publication in AR, which was entered into a computer using a new technology called "Voice Direct".

I dictated the written word into a microphone attached to appropriate software.

My words appeared as text on the monitor with about 75% accuracy.

As the computer has not so far been "trained" to accept electronic and technical terms I consider 75% reasonable accuracy. After its training course, which takes some time, I expect the accuracy rate to rise to at least 90% which is faster than I can type as the words are read at a rate of about 160 words per minute.

I hope to make more use of this medium as the computer becomes better trained to understand my voice!

Clarry said: *I was late getting on 50 MHz this season; I was checking my gear last September and accidentally put a 12 volt lead that had the voltage reversed on to my transverter.*

After the smoke cleared, all transistors were blown plus the Tantalum capacitors, with a few other capacitors and resistors damaged.

It was after Christmas by the time I got all working. Heard one or two VKs and I did QSO ZL9CI.

Heard no JA openings until 21/3 while looking for any stations in the John Moyle Field Day, when up came JF5NTT/7. I QSOd him at 0240 but did not hear any other JAs or beacons.

Was a little disappointed that there were not more openings. [Plenty of activity before Christmas, Clarry ... VK5LP].

Some days the Alice Springs beacon was strong but no other signals.

Been mainly getting my ATV gear on 426/576 MHz working and producing a satisfactory signal and colour picture.

News from all over

Ted Collins G4UPS advises that 25 February 1999 was the tenth anniversary of the first ever six metre QSOs with VS6 and JA from the UK.

Apart from the VS6 and JAs from 0855 the band was open later to ZS3 (now V5), ZS6, J52US and 5N0.

Ted says: "*It really does look as if the present solar cycle is going to peak on the 11th year.*

Incidentally, on 26 February 1989 the

band opened again to JA, JA6, ZS6, ZS3, J52US, and from 1535 the band opened "across the pond" to W3JO/W2CNS and W8 land!"

Ted continues to maintain his daily morning skeds with G3CCH over the 350 km tropo path and says that contacts have been particularly good over the past few months. "

On 28 February 1999 we celebrated our 4000th six metre QSO - I wonder if this is a record over this distance?"

[Whether it is a record or not, it is a good effort as Ted runs 25 watts to a five element beam, not very high. ... VK5LP].

Restrictions on use of 420 MHz band

Amateurs will have received a withdrawal notice from the Australian Communications Authority.

The notice advises of the withdrawal from use by amateurs within a 150 km radius of the Homebush Olympic Stadium, of the spectrum 421 to 422 MHz and 424 to 432 MHz until 31/12/2000.

The only comment I wish to make is to say it was a pleasant surprise to receive a letter from a Government authority or agency, outlining certain changes to existing procedures, without the accompaniment of a threatening paragraph outlining (usually) huge fines for failure to comply.

In this case the ACA has made a conciliatory approach, albeit definite, that portions of the band have been withdrawn from use by affected amateurs.

For those operating high power around 432 MHz the ACA has invited amateurs to check that they do not interfere with the SORN operations.

Again, I see this as a sensible approach to gain cooperation from those involved. Thank you ACA.

A listener reports

I was pleasantly surprised to receive during February a DX radio listener's extensive log covering the VHF bands.

It came from **David Vitek** of Parkholme, an Adelaide suburb.

All reception is via an Icom R7000 and a five element 50 MHz beam!

David has no interest in transmitting but is an avid listener, and keeps reception logs covering FM and TV transmissions, six metres, beacons, VHF 30 to 150 MHz, 10 metres, shortwave stations, harmonics and HF stations in general.

I am truly amazed at the loggings he has amassed.

I always knew there were many signals between 30 and 150 MHz, but it is not until you see a well documented listing that you realise their sheer numbers.

I have spoken directly to David and he understands that it is difficult to include much of what he hears in these columns.

However, with the recent arrival of another massive listing, I think there are readers who would be interested in a sample of what can be heard on VHF. I have selected one day from each group.

The MUF must have been very high on 19/12/98 when 66 stations were logged in the commercial FM band.

Areas heard included Cairns, Townsville, Rockhampton, Airlie Beach, Mackay, Toowoomba, Mount Isa, Alice Springs, Perth, Northam, Albany, Bunbury, Launceston, Devonport, Burnie, St Marys, Hobart, Cootamundra, Sydney, plus a host of lesser known localities, particularly in Queensland.

Frequencies ranged from 88.7 to 107.75 MHz.

In addition, 15 TV stations were logged including three from New Zealand. On 50 MHz there were 8 amateur beacons and 16 VKs plus P29PL.

On 11/3/99: TV: RTQ0 51.670 MHz, ABSQ1 62.76, NEN0 51.761, ABMN0 45.24/25/26, 49.750/7465/749/7526/7564/7573; 57.750 China C2, 57.7488 C2, 48.2394 E2 Malaysia, 48.260/250/2396. FM: 88.7 MHz 4ABCFM Nambour, 93.3 4SBS Brisbane.

Amateur: 11 JAs in JA1,2,3 and 9 between 0314 and 0402, VK4JH, VK4ABW, VK2DN, VK2FHN, VK2YO, VK4AFL. Beacons: VK8RAS, VK6RPH, VK4ABP, VK4RGG, VK2RHV, JA2IGY, JG1ZGW.

In total, from 18/12/98 to mid March, the MUF supported signals from 88 to 108 MHz on 19 occasions, plus the odd Channel 5A on 143.750 MHz.

Do you have a point of view about some thing you have read in Amateur Radio?

Or about the hobby itself.

Or perhaps some news about people connected with amateur radio.

Share it with us and your fellow amateurs.

These are your pages.

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Deadlines: by about the 15th of month prior

All very interesting; I just wish I could give readers a full print-out.

Barry Miller VK3BJM asks: *"In order to assist me plan a few field trips, I'm interested in getting some feedback from the grid square hunters as to what squares they may want to add to the "worked" list. Bands immediately available to my plans are 2m and 70cm. 23cm under way.*

At the moment grid squares I plan to set up in are those within VK3, and some of those into VK5 and VK2. But all reasonable requests will be considered. I believe QF04 and QF05 may be my first target, tentatively for around 29/30/31-5-1999." E-mail to BMiller@vnpbtrom.telstra.com.au or address letters to 250 Elgar Road, Box Hill South, Victoria, 3128.

Closure

A mixed bag this month. I have done the best I could with it. In lieu of the usual two thoughts for the month, read the following.

David VK5KK said: Here is a piece written by a frustrated engineer in a private company .... James Antonacci wrote:

Engineers vs Managers

A group of managers were to measure the height of a flagpole. They take their clipboards, calculators, ladders and tape measures to the pole. Half an hour later they're still falling off the ladders, dropping the tape measures and most of their paper has blown away - the whole thing is a shambles.

An engineer sees what they're trying to do, walks over, pulls the flagpole out of the ground, lays it flat, measures it from end to end, gives the measurement to one of the managers, stands the pole back up and walks away.

After the engineer has gone, one manager turns to another and laughs. "Isn't that just like an engineer, we're looking for the height and he gives us the length."

73 from The Voice by the Lake

ar

In a similar mood:-

Three engineering students were travelling home from Uni one afternoon when the car engine stopped.

They sat still for a moment before the mechanical engineer suggested they dismantle and reassemble the engine.

The electrical engineer was wiser and suggested they simply needed to overhaul the ignition system.

But the wisest of all was the computer engineer who suggested they turn everything off, all get out and wait ten seconds; then try restarting it.

Bob VK4KNH.

CONTESTS

Ian Godsil VK3DID,
57 Nepean Highway, Aspendale, 3195

Greetings to all contesters.

The List

May 1/2	ARI International DX Contest	(CW/SSB/RTTY)	(Apr 99)
May 8/9	CQ-M International DX Contest	(CW/SSB/SSTV)	(Apr 99)
May 15/16	Sangster Shield NZART	(CW)	(Apr 99)
May 29/30	CQ WW WPX Contest	(CW)	(Feb 99)
Jun 5/6	IARU Region 1 Field Day	(CW)	
Jun 6	Portugal Day Contest	(SSB)	
Jun 12	QRP Day Contest	(CW)	(Apr 99)
Jun 12	Asia-Pacific Sprint	(SSB)	(Jan 99)
Jun 12/13	TOEC WW Gridf Contest		
Jun 12/13	ANARTS RTTY Contest		(May 99)
Jun 12/13	South America WW Contest	(CW)	
Jun 19/20	VK Novice Contest	(CW/Phone)	(May 99)
Jun 19/20	All Asia DX Contest	(CW)	(May 99)
Jun 26/27	ARRL Field Day		(May 99)
Jun 26/27	Marconi Memorial Contest	(CW)	(May 99)
Jul 1	Canada Day Contest	(CW/Phone)	(Jun 99)
Jul 3	Jack Files Contest	(CW)	(May 99)
Jul 3	Australasian Sprint	(CW)	(Jun 99)
Jul 3	NZART Memorial Contest	(CW/Phone)	(Jun 99)
Jul 10	Australasian Sprint	(Phone)	(Jun 99)
Jul 10	Jack Files Contest (Phone)		(May 99)
Jul 10/11	IARU HF World Championship	(CW/SSB)	(Jun 99)
Jul 10/11	Internet 6 Metres DX Contest	(CW/SSB)	
Jul 17	Pacific 160 Metres Contest		(May 99)
Jul 17/18	SEANET CW Contest		(Jun 99)
Jul 18	Colombian Independence Contest	(CW/SSB/RTTY)	(Jun 99)
Jul 23	ACORNZ 'ZIP' Contest (Phone)		(Jun 99)
Jul 24	Waitakere Sprint (Phone)		(Jun 99)
Jul 24/25	Russian RTTY WW Contest		
Jul 24/25	RSGB IOTA Contest (CW/SSB)		(Jun 99)
Jul 30	ACORNZ 'ZIP' Contest (CW)		(Jun 99)
Jul 31	SARS Sprint Contest (SSB)		(Jun 99)
Jul 31	Waitakere Sprint (CW)		(Jun 99)

The Contesting Editorial

Thanks this month to SM3CER VK4WSS JARL SP DX CLUB ZL2BIL

A few weeks ago I heard a comment from a VKDX station that the Americans told him that they "were putting up their big antennas for the Contest".

Now that we in VK are approaching our busy time for contesting, does that comment apply to us, or are we complacent enough to make do with what we have?

Contesting can be great fun and very rewarding, but without some serious effort to achieve our best, then we shall not find the rewards that we think we should have.

I urge all serious contesters to check your antenna system thoroughly, as well as your shack equipment, so that everything is in top condition.

Two points on which I ask for your full co-operation are: - to be sure that you read all current details of Contests, and ensure that you send your logs to the correct address as provided in the details.

There have been many instances of logs being sent to past Managers, which means that there is a strong possibility that the logs will be too late or not received at all for the current year.

For those of you with Internet access, I commend to you the page operated by John Loftus VK4EMM, one of our best-known contesters in VK.

His monthly Report is always interesting and full of good hints for contesters of all levels. John's URL is

http://www.uq.edu.au/radiosport/

Good contesting and 73 de Ian VK3DID

Results SPDX Contest 1998

(call\cat\score)

VK3CRP	MOMB	1827

(VK3s EST, XJZ)

VK2AR	SO14CW	1350

YOU HAVE TO BE IN IT TO WIN IT

Summer VHF-UHF Field Day 1999:

John Martin VK3KWA, contest manager

The Summer Field Day was well supported again this year, although it is disappointing that there were no logs from VK2.

There was only one log from VK6, but it has taken the prize.

Results

The winner this year is Wally Howse VK6KZ, who took out equipment for eight different bands and operated it from four locations.

That is a lot of packing and unpacking.

And speaking of which, the top score in section B went to Peter Freeman VK3KAI, who activated three grid squares on four bands and also found time over the weekend to enter the home station section as well.

There were only two multi-operator entrants this time.

The Geelong Amateur Radio Club has done it yet again, but VK5AR was not far behind. And in Section D, Des Clarke VK3CY has taken first place again.

Congratulations to those who won their sections, and to all entrants. It was good to see some new callsigns in the list this year.

I hope you had a good time and I look forward to seeing your logs again next time.

Comments

Looking at the logs for the last few years, it is clear that the growth area is the 6-hour section.

It is ideal if you don't have portable beams or can't get away for the 24 hours. You can still get a good score by going mobile and spending time at several different locations.

The rules have stayed much the same for some years, but I feel that it is time for some adjustments to the band multipliers.

The aim of the scoring is to provide reasonably equal scoring potential for all bands.

If the band multipliers are too steep they can make it very hard for people who do not have microwave gear.

That seems to be happening now, so I feel that some trimming of the band multipliers is in order.

As usual I would be grateful for any comments or suggestions.

RESULTS

Call	Name	Grid	50 MHz	144 MHz	432 MHz	1.2 GHz	2.4 GHz	3.4 GHz	5.7 GHz	10 GHz	TOTAL
SECTION A - PORTABLE, SINGLE OPERATOR, 24 HOURS											
VK6KZ	W. Howse	OF77,78,87,88	89	412	742	970	1053	1200	1024	1216	6706
VK3EK	R. Ashlin	QF31,32,42	99	840	1001	1060	819	1008	-	1008	5835
VK3WRE	R. Edgar	QF32	207	1264	1540	1200	273	-	-	-	4484
VK5NC	T. Niven	QF02	59	700	399	580	-	512	336	544	3130
VK3BJM	B. Miller	QF33	73	968	952	720	-	-	-	-	2713
VK4OE	D. Friend	QG61	-	316	259	-	299	-	-	352	1226
SECTION B - PORTABLE, SINGLE OPERATOR, 6 HOURS											
VK3KAI	P. Freeman	QF21,30,31	85	496	539	210	-	-	-	-	1330
VK5UE	C. Low	PF95	39	180	301	-	-	-	-	-	520
VK5AIM	S. Mahony	PF95	39	180	294	-	-	-	-	-	513
VK4LP	J. Lemura	QG62	-	458	-	-	-	-	-	-	458
VK3YE	P. Parker	QF22	-	272	-	-	-	-	-	-	272
VK4EV	R. Everingham	QG62	-	192	-	-	-	-	-	-	192
SECTION C - PORTABLE, MULTI OPERATOR, 24 HOURS											
VK3ATL	GARC (1)	QF21	78	992	1169	990	-	-	-	-	3229
VK5AR	(2)	PF94	196	964	924	490	-	-	-	352	2926
SECTION D - HOME STATION, 24 HOURS											
VK3CY	D. Clarke	QF13	-	832	595	-	-	-	-	-	1427
VK3KAI	P. Freeman	QF31	57	232	392	230	-	-	-	-	911
VK3CAT	T. Middleditch	QF22	82	708	-	-	-	-	-	-	790
VK5LP	E. Jamieson	PF94	47	232	231	220	-	-	-	-	730

(1) Geelong Amateur Radio Club: J. Barrand VK3DFL, C. Gnaccarini VK3BRZ, D. Learmonth VK3XLD, L. Sim VK3ZLS, M. Trickett VK3ASQ.

(2) A. Raftery VK5AR, A. Russell VK5ZUC.

Marconi Memorial Contest (CW)

1400z Sat 26 June to 1400z Sun 27 June

Not a popular contest in VK but worth a mention.

Object is to work as many stations as possible.

Bands all HF (no WARC).

Mode CW only.

Categories Single Operator low power (100 w max. o/p); S/O QRP (max 5 w o/p); Multi-operator.

Exchange RST plus serial number beginning at 001. 10 minute rule applies.

Multiplier is each DXCC country once per band.

Final score is total QSO points X total multipliers

Separate logs for each band.

Summary sheet for each band showing all details, description of station and signed declaration.

Send logs by mail to:
ARI sez. di Fano,
PO Box 35, I-61032 Fano (PS), Italy
by 26 July.

Logs in ASCII format on disk acceptable. Various **awards** are available.

All Asian DX Contest

Bands all HF bands (no WARC). **Categories** Single Operator single band; single operator multi-band; multi-operator multi-band.

Call on CW CQAA; on Phone CQ Asia.

Exchange for OMs RS(T) us two digits of your age; for YLs RS(T) plus 00. Cross-band contacts not allowed, nor multi-signals for S/O category.

Score three points for QSOs on 160 metres; two points for 80 metres and one point for other bands.

Multipliers will be Asian prefixes worked on each band. Note: JD1 Ogasawara (Bonin and Volcano) Islands are Asia and JD1 Minami-tori Shima (Marcus) Islands are Oceania.

Final score is total QSO points X total multipliers.

Logs should be on separate sheets for each band with full details.

Summary sheet should include your DXCC country, call, category, multipliers (clearly marked by countries or Asian prefixes first time worked each band) and points by band, total score, signed declaration.

Send logs to
All Asian DX Contest,
PO Box 377, Tokyo Central, Japan,
by 29 July (CW) or 29 October (Phone).
Mark CW or Phone on envelope.

ARRL Field Day

1800z Sat 26 June to 2100z Sun 27 June

Again, this is not a popular contest in VK. Details available on Internet or from me.

Pacific 160 Metres Contest

0700z - 2330z Sat 17 July

Object is for P2, ZL and VK stations to make as many contacts as possible on **band** 160 metres (suggested frequencies 1825 - 1850 kHz). DX stations are encouraged to participate, but may only work P2, ZL and VK.

Categories: Single operator; SWL. **Modes**: CW, Phone. (See special notes below).

Exchange RST plus serial number beginning at 001.

Score one point for QSO with own call area; two points for other call areas in ZL and VK; three points for Pacific Islands (ZK1, VK9); five points for areas outside P2, ZL, VK.

Multiplier is number of VK and ZL call areas worked, plus OTHER DXCC countries worked.

Final score is total QSO points X total multiplier.

Certificates will be awarded to top-scoring stations in each section, in each call area of ZL and VK, and in each DXCC country.

Send log with full details, signed summary sheet and any comments to: Ian Godsil VK3DID, 57 Nepean Highway, Aspendale, 3195, Australia, by 13 August 1999. Logs on 3.5 inch disk in ASCII format gladly accepted, or by e-mail to: <vk3did@eudoramail.com>

Special Notes: (i) to avoid QRM between modes, stations are asked to operate in 15-minute blocks as follows: CW on the hour and hour+30; SSB on hour+15 and hour+45; (ii) please listen carefully for DX, as many American stations will be trying for us, also JA, DU and YB.

ANARTS WW RTTY Contest

0000z Sat 12 June to 2400z Sun 13 June

Not more than 30 hours of operating is permitted for Single Operator stations. Non-operating periods can be taken at any time during the contest. Multi-operator stations may operate the entire contest period.

A summary of operating times is required with each single operator log.

BANDS: Use Amateur bands 80/40/20/15/10 metres.

MODES: All digital modes are permitted (RTTY, AMTOR, FEC, PKT, PACTOR).

NOTE: No satellite operation is permitted.

CATEGORIES: (A) SINGLE OPERATOR (One transmitter)

(B) MULTI-OPERATOR (One transmitter)

(C) S.W.Ls

EXCHANGE: to consist of RST, Time (UTC), and (CQ) Zone.

SCORING: For each band - Use the "Exchange Points Table (Marked 1994)" to obtain QSO Points for each QSO. Any contact with VK2SG earns double the table points for that QSO. Count Countries/Multis worked (see definition).

Total all bands used to obtain (1) Total QSO Points.

(2) Total Countries/Multis.

World stations calculate "VK BONUS" which is 100 points for each VK worked on 14MHz: 200 points for each VK worked on 21 MHz: 300 points for each VK worked on 28 MHz: 400 points for each VK worked on 7 MHz and 500 points for each VK worked on 3.5 MHz.

CLAIMED SCORE for WORLD STATIONS is calculated by multiplying (1) TOTAL QSO POINTS BY (2) TOTAL CNTRY/MULTIS, then THAT TOTAL by (3) the NUMBER OF CONTINENTS WORKED DURING THE CONTEST. (Note that each continent counts once only to a maximum of 6). To the total obtained ADD the "VK BONUS" to show GRAND TOTAL CLAIMED SCORE...

Example for World Station: 720 points from zone chart (1) X 29 cntry/multis (2) X 5 continents (3) = 104,400 points, plus (+) 6 VK stations worked on 14MHz (that is 600 points) giving a grand total 0f 105,000 points.

CLAIMED SCORE for AUSTRALIAN STATIONS (VK1-VK8) is calculated by multiplying (1) TOTAL QSO POINTS by (2) TOTAL CNTRY/MULTIS and then that total by (3) the NUMBER OF CONTINENTS WORKED during the contest with a maximum of six as stated above. This calculation gives the GRAND TOTAL CLAIMED SCORE.

In all cases, a station may only be worked once per band, but may be worked on other bands for QSO points and multipliers.

COUNTRIES/MULTIS: Are counted as per ARRL DXCC list of countries, EXCEPT THAT Australia (Areas 1- 8), Canada, Japan, and U.S.A. mainland do not count as separate countries. HOWEVER, each call area VK1 - VK8, and each call area in Canada, Japan, and mainland U.S.A. DOES COUNT AS A SEPARATE MULTIPLIER.

Contact with one's own country/multi

does count for QSO points but does NOT COUNT AS A MULTIPLIER. (Remember that call areas VK1-VK8, and call areas in Canada, Japan, and U.S.A. mainland are multis).

LOGS: Logs must show in this order:

1. DATE 2. TIME (UTC) 3. CALLSIGN OF STATION WORKED/HEARD. 4. MESSAGE INFORMATION SENT/ RECEIVED (RST/TIME/ZONE) 5. POINTS CLAIMED.

SUMMARY REPORT: Summary sheet must show: Callsign of station, name and address of operator, bands used (a separate log is required for each band), the points claimed for each band, the number of countries worked on each band, the number of continents worked and details of VK BONUS calculations for World Stations.

A summary of the calculations made to obtain the GRAND TOTAL CLAIMED SCORE as per the "Scoring" instruction will assist checking.

The general certification regarding compliance with Rules and the signatures and call signs of operator(s) are also required. Multi-operator logs must contain signatures and callsign of each operator. Single-op logs must show summary of operating times. Dupe sheets will be appreciated for any band log over 75 QSOs.AWARDS: Plaques will be awarded to first in World in each Classification.

Certificates will be given to 1st to 5th places in the World, and to 1st to 3rd places in each of six continents, and to 1st to 3rd in each country/- multiplier, in each Classification. The judge's decisions will be final and no correspondence will be entered into.

We reserve the right to list multiple awards on any Certificate and/or vary the numbers of awards given without notice.

Logs become the property of ANARTS.

CLOSING DATE: Logs must be received by the Contest Manager, ANARTS, PO Box 93, TOONGABBIE, NSW, 2146, Australia, by 1 September 1999.

Logs may be sent by e-mail before 25 August to: <vk3did@eudoramail.com> who will forward them.

Jack Files Memorial Contest 1999

from Peter VK4VW

CW: Saturday 3 July 1999
Phone: Saturday 10 July 1999.
Both contests run 0800 to 1400 UTC.

This contest, sponsored by the Wireless Institute of Australia, Queensland Division, honours the late Jack Files, a long serving VK4 WIA Councillor.The Object is for Amateurs to work as many VK4 cities, towns and shires as possible (SWLs to hear and log), to encourage portable/mobile activity from the less populated VK4 shires and towns, and to serve as a warm-up for the RD contest.

Categories:

a) Single operator home;
b) Club fixed;
c) Single operator mobile/portable;
d) Club mobile/portable;
e) Stations outside VK;
f) Short wave listeners;

In this contest only single operators are permitted to have a log-keeper. Club stations can use multiple transmitters, provided there is only one station on each band at any one time.

Bands 160, 80, and 40m only. The contest is in **six one hour periods** for the purpose of duplicate contacts, ie 0800-0859, 0900-0959, 1000-1059 and so on. You may rework a station at any time provided they are not consecutive QSOs and the station has not already been worked during that one-hour period.

Contacts with stations in other contests are valid, as are contacts with DX stations, and those with VK6 are encouraged. Contacts on the 80m DX window are not permitted. Cross-band contacts are not permitted.

SWL entrants are to include the calls and serial numbers of both stations received, and may not log more than five consecutively from any one station in each one-hour period.

Exchange RS(T) followed by a serial number incremented by one for each QSO, continuing when changing bands. Vk4s will send RS(T), serial number and a two-letter Shire Code. Multi-transmitter stations should use a separate log sheet for each band.

Score one point per QSO for all non-VK6 stations and two points for VK6 stations. Each VK4 shire/town code per band counts as a multiplier, as does each prefix per band. To stimulate portable/mobile activity, portable/mobile entrants can also claim one multiplier per band for each VK4 shire/ town/city they operate from. The **final score** equals total points multiplied by total multipliers.

Definitions: A mobile/portable station is one which uses a portable power source ie: car battery, solar or portable generator power and a temporary antenna system.

Logs: attach a summary sheet showing the name, postal address and callsign of the entrant, section entered, operator names and calls, station location, equipment used, points claimed, and a declaration that the rules and spirit of the contest were observed.

Send logs to Jack Files Contest, WIAQ, GPO Box 638, Brisbane 4001, by Wednesday 1 September 1999 to be eligible.

1999 WIA Novice Contest

0800z Sat - 0800z Sun 19/20 June

from Dave Myers VK2RD

Object is to encourage amateur operation in VK, ZL and P2, and to promote contacts with Novice and Club stations. Only VK, ZL and P2 stations are eligible to compete, and stations in the same call area may contact each other for contest credit.

All operation must be confined to the Novice frequencies in 10, 15 and 80 m bands. No cross-band operation permitted.

Categories: Single Operator; Club; SWL. **Sections**: CW, Phone.

Call: CW "CQ N"; Phone "CQ Novice Contest"; Club "CQ Novice Contest Club Station" followed by callsign. **Exchange** RS(T) and serial number commencing at 001 and incrementing by one for each contact. Stations may be contacted twice per band, providing at least 12 hours have passed since the previous contact

SWLs may log up to 10 sequential contacts made by a station, and must then log at least five other stations before logging the previous station again. The five stations so logged need be a minimum of one contact only.

Score two points for contacts with Full Call stations; five points for Novice/ Combined stations and 10 points for Club stations. SWLs score two points for Novice-to-Full, Full-to-Full; five points Novice-to-Novice; 10 points for Club.

Logs headed "VK Novice Contest 1999" must show: date; time UTC; band; mode; station contacted; exchanges; total claimed score for each page at bottom. A **summary sheet** should show: callsign; name; mailing address; category; section; number of valid contacts, claimed score; signed declaration; signature of operator or, in the case for Club station, a responsible officer.

Entrants may submit only one log per mode. Logs for entries where an entrant uses more than one callsign whilst operating in the contest will not be accepted.

Mail logs to: Novice Contest Manager, Westlakes ARC, PO Box 1, Teralba NSW 2284, by 16 July 1999. Logs may be e-mailed to: <vk3did@eudoramail.com> for forwarding.

Awards: Clive Burns Memorial Trophy for Novice with highest CW score, and Keith Howard VK2AKX Trophy for Novice with highest Phone score. (These are perpetual trophies held at Federal Office, a plaque is sent to the winners.) Certificates will be awarded to top-scoring Novice in each call area; top-scoring station in each section; any entrant where meritorious operation has been carried out. Certificates at the discretion of the Contest Manager.

Thanks and 73 de Ian VK3DID **ar**

INTRUDER WATCH

KEEP 1426.5 kHz under observation.

Please be alert and watch for the return of the 3 channel multiplex signal against which we mounted a combined action last year.

In the past this station has operated from March/April to October/November and if we have been unsuccessful in our attempt to have the transmission moved out of our exclusive band it is due to reappear shortly.

If you hear this signal please advise me by Phone/Fax 07-4985-4168 or Packet Radio VK4KAL @ VK4JEM.

If indeed he does reappear, the Region 1 co-ordinator will try once more to stop the intrusion.

With the co-operation of as many regional societies as possible in obtaining further official complaints we will end this long standing contravention of the Radio Regulations.

{The basic info for this was taken from Region 1 M.S. Newsletter for March 1999}

The most persistent intruders of the month of March, World Wide: Frequency only; 7.000 7.030 7.080 7.085 7.098 14.150 28.000 29.7MHz.

The main RSGB States Russian 36.5bd, 500 hz data signal, Dly on 28.049.5 KHz, appears now on 28.050.5 KHz.

Keep an ear open for this in VK.

WIA/IARUMS Summary March 1999

Freq	Date	Utc	Em	Details
3.557	2203	1045	A1A	L9CC CIS
3.560	2303	1245	A3E	R.Korea, news in English
7.098**	2503	2330	A3E	B/C Indonesia
14.211**	0303	0533	F1B	UiVFT 850 hz, 112 bds
14.250	2103	1149	N0N	UiCAR, weak/ LoMod on fundam'tal
14.250	2203	0940	A3E	N.Korea, H5/2.8MHz.
28.215	0203	0530	A3	EUiBC, Comm. stn. Thailand
28.650**	2003	2210	A3E	R.Habana. H3/995 MHz, ID ok.Cuba

** Primary Intrusions.

Don't let this small summary "fool" you that we are on top of the intrusions - far from it. The IWS still needs New Blood to replace the sometimes elderly observers. Without their continued support Mr Average Amateur would be hard put to find a spot to operate.

Don't kid yourself that the bands will always be available.

WE ALL HAVE TO WORK for the removal of those not entitled to them. Whether it be on 70cm or 160m.

Federal Co-ord, Gordon Loveday VK4KAL.

ar

Silent Key

Bill Ashley VK6GA

Born at Crewe (UK) May 12th 1919 he left the UK with his parents at the age of six weeks, arriving in Australia at age of six months.

His first job in his teens was as radio apprentice and errand boy with Perth branch of Ray Allsop's firm Harringtons.

He donned the uniform and spent his war years (WWII) in the Army Signals Corp.

At war's end Bill took a rehabilitation course emerging as a male nurse serving at Heathcote Mental Hospital where he met his future wife, Joy.

A family joke about this was inevitable – the punch line being that Joy too was a nurse and not a patient.

His career then took him to DCA for several years as a Radio Operator.

Bill next took a roving commission as career guidance officer with the WA Dept. of Education visiting high schools in both the city and country.

Just as retirement beckoned (or threatoned) Bill allowed himself to be talked into a part-time job with the Dept. of Army.

His Amateur Radio hobby began with his first CW QSO in early 1938 with his new Full-Call ticket.

From then on, whether in professional or amateur life, he was never far away from key, microphone or mill.

Perhaps not a high profile Amateur but a good citizen, loving husband and father and a loyal supporter of the WIA. Bill died quietly at home, March 3rd 1999.

Submitted by Harry Atkinson VK6WZ

And an intruder of another colour

By Richard Murnane VK2SKY

Marketing Junk Technology – the Final Frontier?

How Swatch Hijacked an Amateur Satellite for Commercial Purposes

At first, I thought it had to be a belated April Fool's joke: a Swiss manufacturer planning to broadcast commercial messages on the Amateur Radio two metre satellite band. But no, it was true. Swatch's web site (www.swatch.com) boasted the company's plans to do just that.

It wasn't obvious at first, however. Nowhere on the site was Amateur Radio mentioned directly, but one of the less accessible pages noted that the satellite would transmit its messages "into space" on a frequency in the range 145.800 and 146.00 MHz. Sound familiar? It's the 2m Amateur satellite band.

The company was soliciting messages from Internet visitors, which would be uploaded to the satellite for transmission. Messages could be in the form of a digitised sound file, or a text message. The one proviso was that the message include the word, "BEAT".

Swatch .Beat: What it is and Why it's Technically Inferior

What's so special about the word, "beat", you might ask. It's the name of Swatch's proposed Internet time standard. The idea is that there are no time zones on Internet, and a time-zone independent means of specifying the time should exist. (Apparently, nobody at Swatch has ever heard of Universal Coordinated Time!)

Swatch proposes that time be specified in "beats", where a beat is 1/1000th of a day. Not satisfied with the prime meridian at Greenwich, Swatch also specifies that "beat" time be referenced to Biel, Switzerland, the location of Swatch Group headquarters. And only Swatch watches will keep beat time.

More next month but checkout:

The full story can be found on the Swatch Protest site, at
http://rob.carlson.org/swatch-protest/

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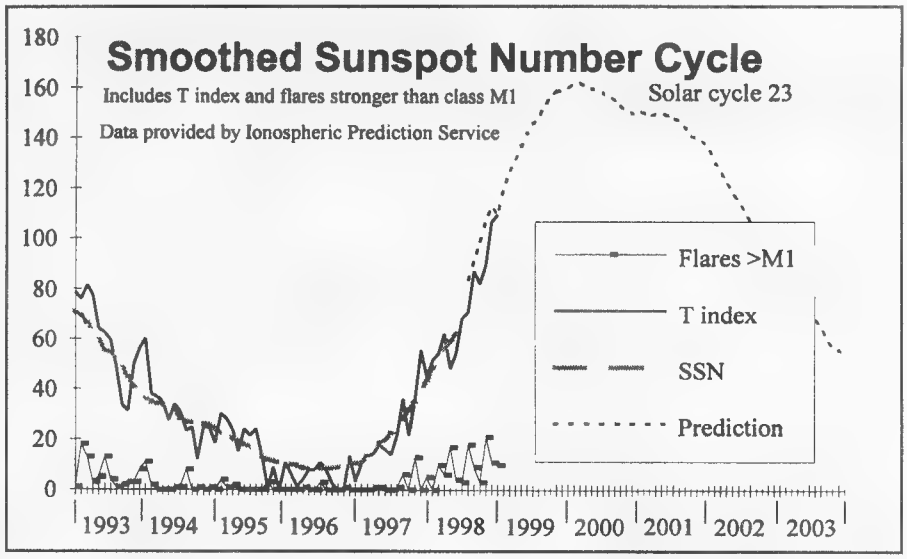
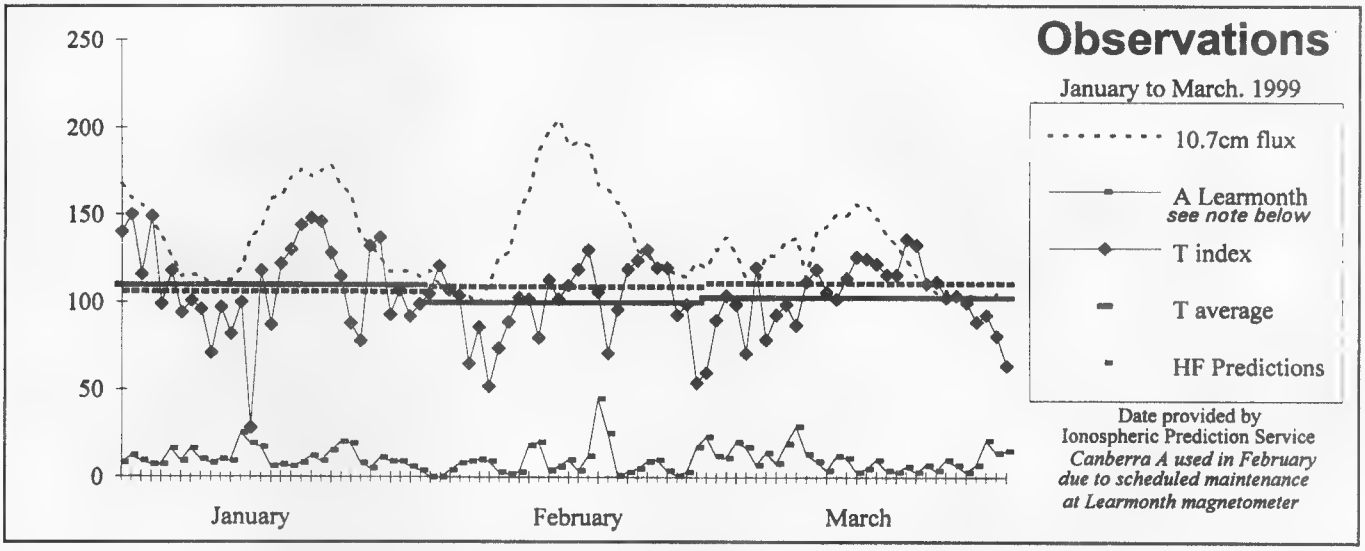
IONOSPHERIC UPDATE

by Evan Jarman VK3ANI
34 Alandale Court, Blackburn Vic 3130



Solar activity

Solar activity has been at relatively low levels this quarter. The monthly sunspot number for January was 62.4 where the predicted value for the smoothed sunspot number was just over 100.



The latest figure for the smoothed sunspot number is 69.7 and is for September 1998. Smoothed sunspot numbers are, by nature, always six months behind. They are an average of the twelve monthly sunspot numbers closest to the time that the smoothed sunspot number refers to.

The twelve month's figures are for the six months in the future and the six months in the past. So any smoothed sunspot number must be at least six months old or it is using a prediction as part of the calculations.

The solar cycle graph shows the smoothed sunspot number (SSN) trending away from the predicted path, and the trend is not good. Hopefully the T index, which is more recent data and does make an attempt to return to the prediction, indicates that this may be momentary. Only time will tell.

In January, activity was low in the first half of the month and rose to moderate levels in the latter half. High activity was observed on 20 January due to a class M5.2 flare at 2004UTC. It occurred behind the eastern limb of the observable solar disc. It is believed to be part of SEC region 8446 which rotated round onto observable disc the next day. Most activity at the time was associated with another region SEC 8440 which did not rotate onto the observable disc until 7 February.

In February, activity was lower than expected. There was mild activity between 12-16 February due to various isolated low level M class flares as SEC region 8440 decayed.

Activity was high on 28 February due to a class M6.6/2B flare at 1639UTC

In March activity was low but was increasing at the end of the month. The reason was not known when the publishing deadline came; it should be in next quarter's update.

Ionospheric activity

The were three periods of depressed MUFs during the quarter.

In January they occurred on days 14 and 25. Both were due to increasing geomagnetic activity on the previous days.

A widespread depression in regional MUFs was observed on 18-19 February in association with geomagnetic storm activity.

Geomagnetic activity

The more significant disturbances during the quarter occurred in the first two months. Activity on the last day of March was unresolved by publication deadline.

These events were :

6 January is believed to be CME related with a long duration class C flare on 3 January.

13-14 January is believed to be related to the filament that disappeared on 11 January

18-19 February which was the most significant disturbance. It followed a class M3 flare on 16 February. A severe storm was observed following the sudden impulse.

ar

HF PREDICTIONS

by Evan Jarman VK3ANI
34 Alandale Court, Blackburn Vic 3130

May 1999
T index: 120

Legend
UD
F-MUF
E-MUF
OWF
ALF
10%-50%
50%-90%
90%-100%
Frequency scale
Time scale

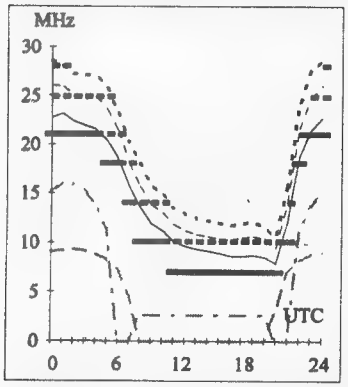
These graphs show the predicted diurnal variation of key frequencies for the nominated circuits. These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Useable Frequency
- E-layer Maximum Useable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

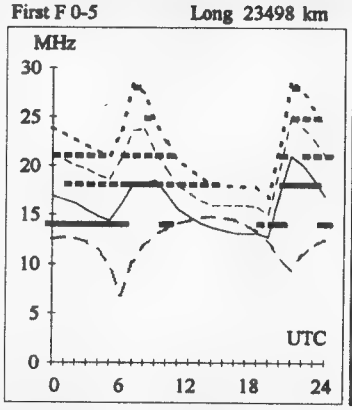
Shown hourly are the highest frequency amateur bands in ranges between these key frequencies; when useable. The path, propagation mode and Australian terminal bearing are also given for each circuit.

These predictions were made with the Ionospheric Prediction Service program: ASAPS version 4.

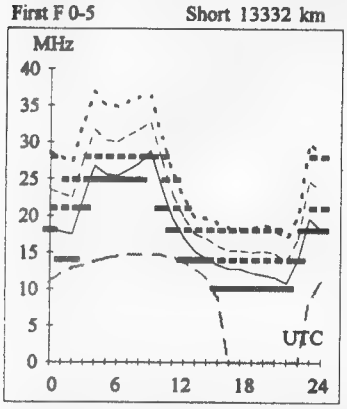
Adelaide-Auckland 104
Second 2F13-16 2E2 Short 3240 km



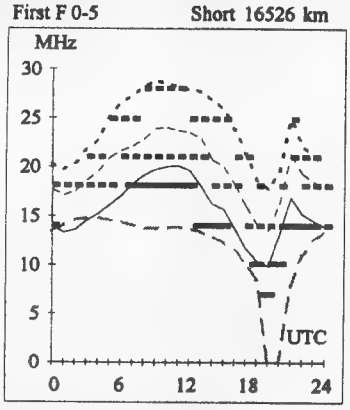
Brisbane-London 147
First F 0-5 Long 23498 km



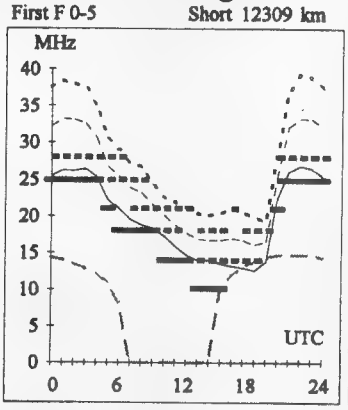
Adelaide-Cairo 288
First F 0-5 Short 13332 km



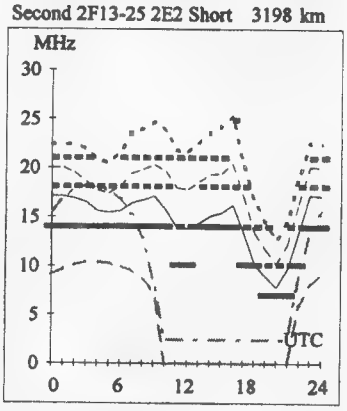
Brisbane-London 327
First F 0-5 Short 16526 km



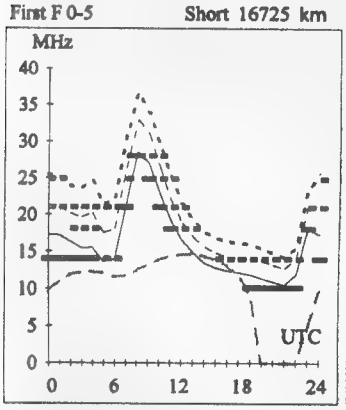
Canberra-Los Angeles 62
First F 0-5 Short 12309 km



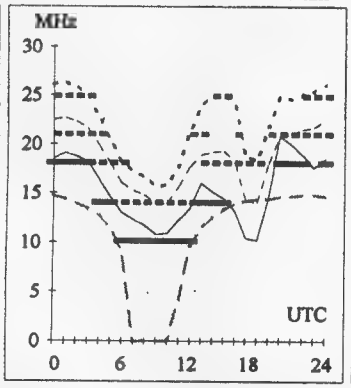
Darwin-Manila 340
Second 2F13-25 2E2 Short 3198 km



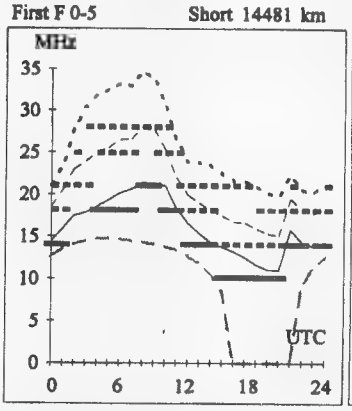
Adelaide-Dakar 233
First F 0-5 Short 16725 km



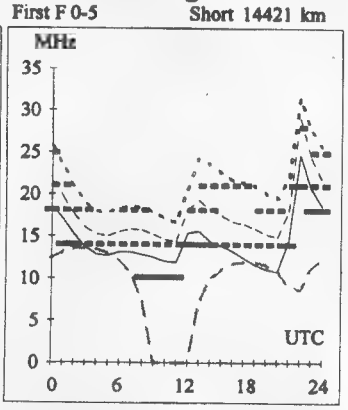
Brisbane-Ottawa 52
First F 0-5 Short 15306 km



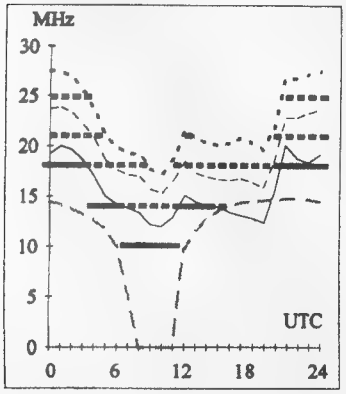
Canberra-Moscow 317
First F 0-5 Short 14481 km



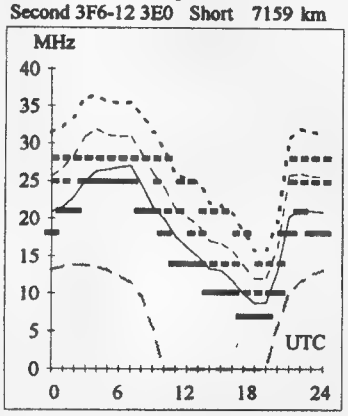
Darwin-Santiago 157
First F 0-5 Short 14421 km



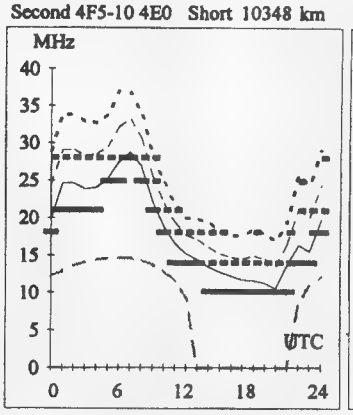
Adelaide-New York 67
First F 0-5 Short 17092 km



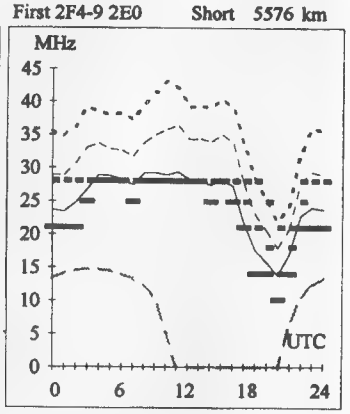
Brisbane-Tokyo 348
Second 3F6-12 3E0 Short 7159 km



Canberra-New Delhi 303
Second 4F5-10 4E0 Short 10348 km

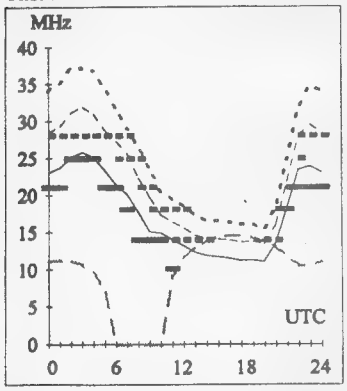


Darwin-Seoul 356
First 2F4-9 2E0 Short 5576 km

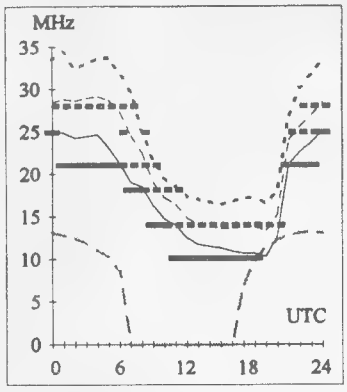


HF PREDICTIONS

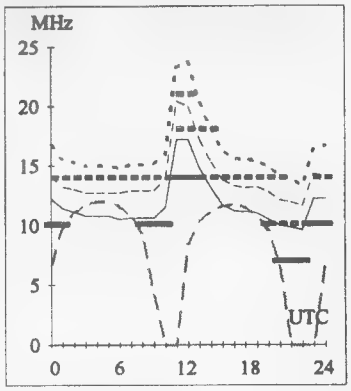
Hobart-Barbados 134
First F 0-5 Short 15823 km



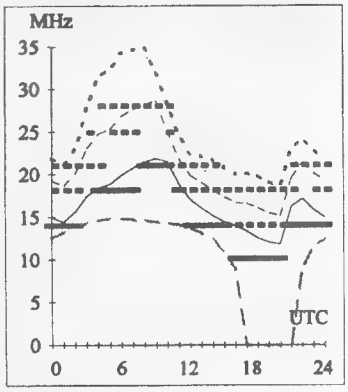
Melbourne-Honolulu 53
Second 4F7-13 4E0 Short 8879 km



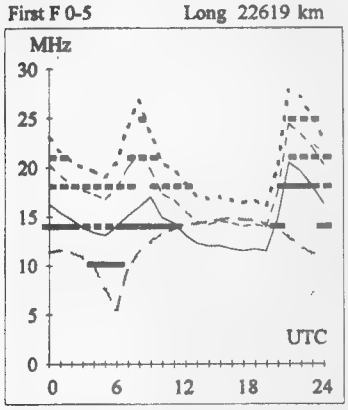
Perth-Buenos Aires 185
First F 0-5 Short 12591 km



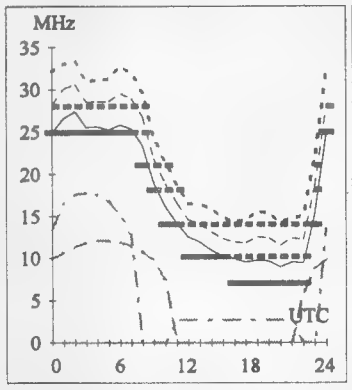
Sydney-Budapest 306
First F 0-5 Short 15778 km



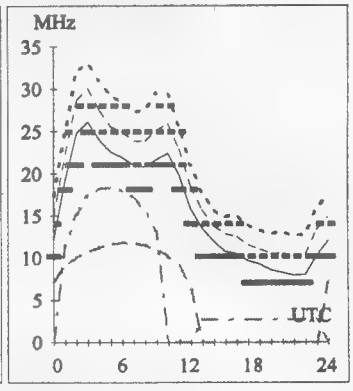
Hobart-London 123
First F 0-5 Long 22619 km



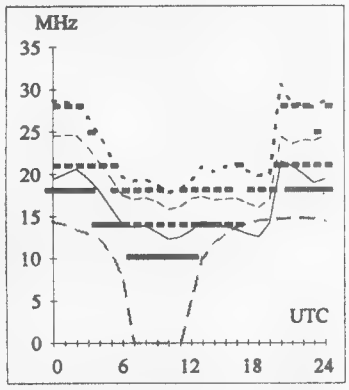
Melbourne-Singapore 306
Second 3F9-13 3E0 Short 6057 km



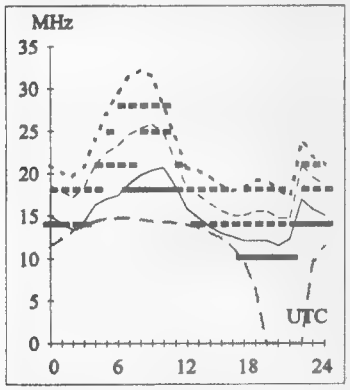
Perth-Columbo 312
Second 3F10-15 3E1 Short 5768 km



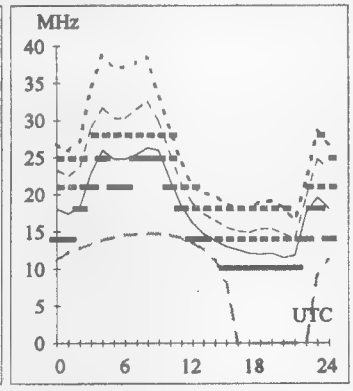
Sydney-Chicago 62
First F 0-5 Short 14876 km



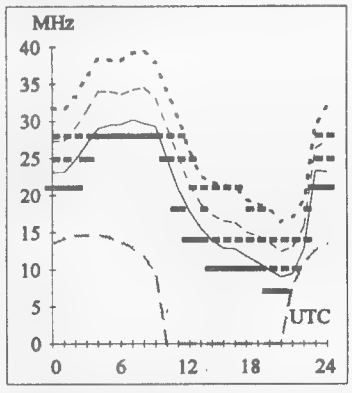
Hobart-London 303
First F 0-5 Short 17404 km



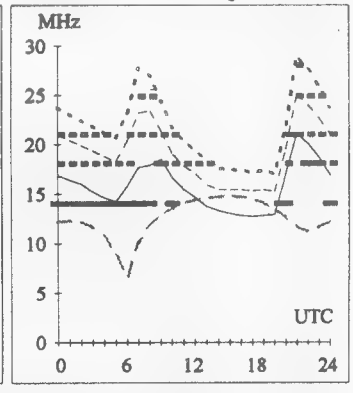
Melbourne-Tel Aviv 287
Second 4F3-4 4E0 Short 13766 km



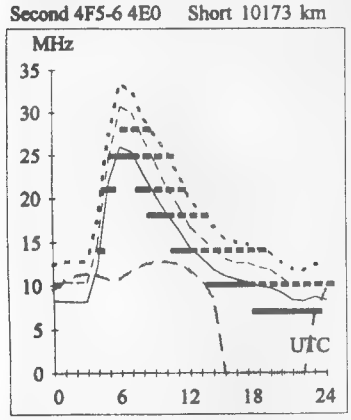
Perth-Osaka 17
Second 3F5-10 3E0 Short 7684 km



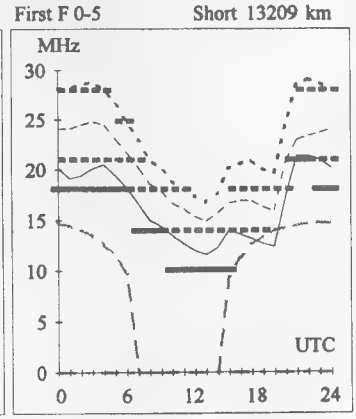
Sydney-Paris 133
First F 0-5 Long 23063 km



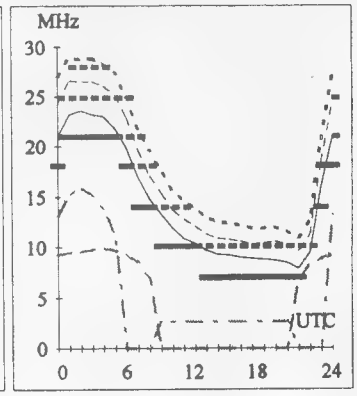
Hobart-Pretoria 232
Second 4F5-6 4E0 Short 10173 km



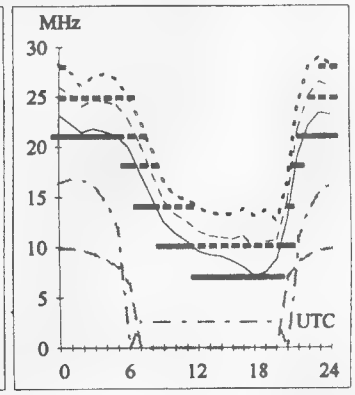
Melbourne-Vancouver 48
First F 0-5 Short 13209 km



Perth-Wellington 119
Second 3F12-14 3E2 Short 5256 km



Sydney-Suva 64
Second 2F13-17 2E2 Short 3221 km



HAMADS

- Hamads may be submitted on the form on the reverse of your current Amateur Radio address flysheet. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or in block letters, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Postal: *Newsletters Unlimited, 29 Tanner Street, Richmond, 3121*
Fax: *03 9428 4242* *E-mail: newsl@webtime.com.au*

Please only send your Hamad once
Please send Hamads by mail OR fax OR email (much preferred).
Please do not send by more than one method for any one ad or issue, it is confusing.

FOR SALE ACT

● **Motorola MCX100** set for 2 meter amateur bands $75 ONO ED VK1NBH
Phone / Fax 02 6251 2312
email gudruned@telstra.easymail.com.au

FOR SALE NSW

● **YAESU FT7 as new** YAESU FT7 original condition in carton, manual SN. 090175 VK2COB Cobber phone 026382 3843

● **YAESU FT212** RH 2 Metre transceiver 45W 140-148 MHz unused in box cost $569 sell $360

TENTEC OMNI D HF transceiver excellent condition $450 Jeremy VK2FLE QTHR 02 6366 8410

● **Estate late Bill Munn VK2BMX**

ICOM IC 736 HF/6M 100W 101 MEM $2100 MFJ969 Versatune $380, **Tandy PRO2005** scanner 25-520M 760-1300M 400 Mem $400 **Kenwood R5000** Receiver $500, **Alinco DJ-X1** Miniature Scanner 100K-1200M 100 mem $400

Bearcat BC590XLT Scanner 29-512M 100 Mem $350 **Bearcat UBC 9000XLT** 25-1300M 500 Mem $400 **Yaesu FT26 2** metre miniature H/held transceiver $400 **Realistic HTX-100** 10 Metre Transceiver $300, **Kenwood TR7800** 2M transceiver $300, **President HR2510** 10 meter T/ceiver $300 **Digitor D2838** Receiver $100

Sn's available, call Tony VK2BOA 02 4943 8981 fax 02 4920 6893 aob@hunterlink.net.au

● **YAESU FT209 RH** 2M Xcvr handheld 140-150MHz- 5watts output case instr. book VGC $190 Peter VK2BPO QTHR 02 9713 1831

● **BACK Issues** of Amateur Radio Action magazines good condition from 1980 through to 1991 $20 Ken VK2CWI QTHR 02 4476 1805

● **ARON** dual trace oscilloscope 20 meg $350 **Leader LIM -870A** Impedance meter $50: **Leader TR Dip Meter** LDM-815 $50: (pair couple together) **Disposals SCR 522** including manual $25: **ATR2B TRCV** $20: **BC221** Freq meter $20: Over **300 assorted valves** and data books Quantity **ARRL hand books** VK2AHP QTH 02 9746 6858

● **Barlow Wardley XCR-30** Communication receiver AM-SSB, instruction manual batteries plus 240V-12V Power Pac $160: **Realistic Pro 2000 UHF** Scanner $110, **MJF Versa** Tuner 11 ATU model MFJ 941E made in USA unused $220 QTHR Les VK2AXZ 02 4954 0893

● **Deceased Estate VK2AQF**

TS820S, VFO820, TS930S, TS120V, FT726R, FL110, FL2100B, SPARE 572B's, FC902 ATU FTV650 FT290R IC502 SM220 Monitor:OFFERS Luke VK2KYQ 01861 5898 or 02 9521 6403

● **TECH GRIDDIP** meter EC in box 440KC to 280Mc $55 John VK2CCC 02 4984 9770

FOR SALE VIC

● **YAESU FTS17A** Tone Squelch Unit CTCSS encoder /decoder F/TS suit FT26 $55 VK3VNB QTHR 03 5335 8426

● **Plessey 6M MTR8000 36Ch** with Freq list and book 40Watt output power Greg VK3ZKV 018309099

● **For sale from the estate of the late Norm Eadie VK3UP**

YAESU FT101Z transceiver with YD 148 600/50K ohms dual impedence mic-$450: **YAESU FL2100B** linear with spare 572B tube - $800 **YAESU FC902 500W** 3 range antenna tuner with inbuilt SWR meter - $200 or **All three of the above for $1300**

YAESU FRG7 full coverage HF receiver - $300 **VIKING 50 ohm** 100W 30 MHz low pass (anti TVI) filter - $30 Phone Harold VK3AFQ - QTHR - (03) 9596 2414 anytime

● **SHACK CLEARANCE**

"RADCOM" (the house magazine of the RSGB).All issues 1981 to 1998.$10 per year or offer. Prefer not to separate: **GOODWILL 5 MHz** single beam CRO with spare mains Transformer - $75: **MFJ 815B 500W** peak reading cross needle SWR/Wattmeter. 1.8-60MHz.-$150 **1 KW H/B** antenna tuning unit with in line dual needle SWR meter $150 **MFJ 114** giant LED 12/24 hour clock.Brand new.Never used. - $60 **IBM Voice Type 3** speech translator (speech to screen) never used. - $30. **AIRMEC 201A 10KHz** to 30MHz signal generator with spare set of tubes - $75: **HP professional 12 step** (10dB per step) attenuator.Good to UHF. $100 **GRUNDIG** grid dip oscillator. 1.7-250 MHz.GC. - $150: **LEADER LMV10** audio millivoltmeter. Good to 1.0 MHz - $75 **LEADER LAG 120A** audio generator. Sine and square wave to 1.0MHz - $50Harold VK3AFQ - QTHR - (03)9596 2414

● **YAESU FT-747GX** Gen.COV. Xcvr unmarked condition $690. **Heathkit HW 2036** 2M FM Xcvr with matching HWA 2036 Power supply GC $120 Alan VK3AMT 03 09789 9106

● **Antenna Log Periodic Yagi.** 7 element 'Coman' built, 3 yrs old. Range is 13-30MHz, in VG condition. All aluminium & SS high quality fittings. Packed up & ready to assemble. $300. David VK3NDS 03 97396213 AH or email <mailto:dsimp@tbsa.com.au>dsimp@tbsa.com.au. Will consider trade for tribander.

● **Icom VHF/UHF twins**: IC271H 2m All-mode 100W and IC471H 70cm All-mode 70W base station units. Both in very good condition. $800 each ONO. Peter VK3KAI QTHR 0409 388 044

FOR SALE QLD

● **KENWOOD TS520S** Transceiver in excellent appearance and working order comes with matching externalVFO $450 negotiable Chris VK4YE

● **Self standing mast** 8 metres 500x400mm steel GC **DAIWA antenna rotor** model DR7500 with DC7001 round controller (#B11031) GC: **SCALAR TRIBAND Yagi** SC33DX 8dB gain VSWR less than 1:5:1 boom 4.32mtrs with 50 ohm cable instruction manual GC the lot for removal $500 VK4CK QTHR 07 3371 2135

● **YAESU FT7B** $350 just serviced: **YAESU 101E** $250 Good condition: **ICOM IC2A** $100 H/Held charger: **Kenwood TS 520S** $400 Just serviced: **ICOM IC551** $300 No FM GC: **Linear 6Mt** $100 **85Watt HF 5** Band Trap $120Vertical

VK4DLT 0413 114953

● **YAESU FT 726** 6,2,70 all mode with sat option **YM-48 DTMF** Mic ful w/shop manual $950: **YAESU FL-2100z** HF linear amp $550: **ALINCO DR-119** 2m. wideRX $250: **YAESU YD-148** desk mic $50: **Hansen JM** 45 VTVM $90 John VK4AJS

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● **Emtron TE-33** 3 element tri-bander & 1:1 balun both new May 98 **Kenpro KR-400RC** rotator, controller & control cable $600. **Yaesu FT-920** HF/6m transceiver S/N 7L090498 new nov 98 auto atu, DSP, CW & Voice keyer as new $1900. Peter VK4VW 0754958724 <mailto:vk4vw@qsl.net>vk4vw@qsl.net

● **813 TUBES BRAND NEW** still in boxes Suit Linear project Alan VK4SS 07 3844 6526 (before 10am please).

FOR SALE SA

New 486DX 250 CD-ROM sound card no monitor $100.00 Andrew VK5XX 08 8381 7195

FOR SALE TASMANIA

● **Kenwood TS520S** transceiver Serial number 840585 complete with Kenwood desk microphone, type **MC50** with instruction book and spare pair of 6146 tubes VK7ARM 03 62 570 400

● **YAESU FT900** HF T/ceiver includes general coverage receiver, Collins filter Auto A.T.U. new boxes manuals. What offers? **YAESU SP6** Ext speaker built in filters new in box suit FT990, FT900, FT 1000 etc $150 VK7AN Allen 03 6327 1171, 0417 354410

WANTED NSW

● **Info** on UNIDEN SMU300H Tx/Rx John Toland VK2KX 02 6621 2933

● **Old valve Comms receivers** working or 'dead' Monitoring station being built up. Even junker sets or parts will pay $ if necessary. big heavy sets welcome so clean out the shed and give me a call. John L21068 (02) 9533 6261.

● **80m resonator** and capacity hat for 18AVT trapped vertical. Jeff VK2BYY QTHR (02)43411704

WANTED VICTORIA

● **Instruction manual for YAESU FC107** Antenna Tuner Would greatly appreciate a copy to buy or borrow to photocopy. Bill Jamieson VK3HX phone (03) 9807 9172 QTHR

● **Technical operators manual** for **Racal VHF/UHF** Calibrator Model 9054.Can be used as a frequency calibrator and deviation meter.Will pay any costs for copies and postage.Used by the East Gippsland Amateur Radio Club for repeater systems.Bob VK3ZAN.Ph03 51567654 or Paket VK3ZAN@VK3ST.vic.aus.oc or Email bobprille@net-tech.com.au

WANTED QLD

● **ANTENNA ROTATOR** Heavy duty emotator, Create, Kenpro, **HF YAGI** Hygain TH5,6 or7 CUSHCRAFT TELREX. **LINEAR POWER AMPLIFIER** HF Henry, TenTec, Titan, Drake, L4B Kenwood TL922. **TOWER**:winch up or self supporting heavy duty. John VK4SKY PO Box 1166 Coolangatta QLD 4225. 0417 410 503.

● **FM 92 Low band** (Local Mounting) converted to 52 Mhz or not Price and condition. Manual (or copy) for AWA Audio ultrasonic test set old type-no model no-marked MTS A210 Costs refunded Gwen VK4CB QTHR (07) 3202 7137.

● **MANUAL YAESU FT411E** Allan VK4NBZ 07 4039 2876

WANTED SA

● **2mb SVGA video card** (16-bit bus). Hank, VK5JAZ. tele (08) 8272-7435; e-mail vk5jaz@slezak.mtx.net or packet vk5jaz@vk5wi.#adl.#sa.aus.oc

● **Audio output transformer** for HMV TV 'V' series stamped part no 905 0621 or 805-0621 VK5ZT Ratcliff Box 26 Two Wells SA 5501

WANTED TAS

● **YL1060 Dual VHF Tetrode valve** for Acitron transceiver. David Slowan VK7MS 72 David Street East Devonport 7310 03 6427 7423

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Championships 1999

12th & 13th June

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access SERG home page at:-

http://www.seol.net.au/serg.

For table bookings or of other information contact Wayne VK5ZX:-
e-mail vk5zx@seol.net.au,
packet vk5zx@vk5sr or phone (08) 87 254335.

TRADE ADS

● **AMIDON FERROMAGNETIC CORES:**

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www.cyberelectric.net.au/~rjandusimports

Agencies at: Assoc TV Service, Hobart: Truscotts Electronic World, Melbourne and Mildura: Alpha Tango Products, Perth: Haven Electronics, Nowra. (aug)

● **WEATHER FAX programs** for IBM XT/ ATs *** "RADFAXZ" $35.00, is a high resolution short-wave weather fax, Morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. *** "SATFAX" $45.00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. *** "MAXISAT" $75.00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add $3.00 postage. ONLY from M. Delahunty, 42 Villers St, New Farm QLD 4005. Ph 07 358 2785.

The Amateur Radio Cover Photo Quest

***Amateur Radio* magazine has an Amateur Radio related photograph on the front cover of each edition. And we need some!**

CURRENTLY THE STOCKS are running low and almost all that we have are either a man up an antenna mast or a sunset with a silhouette of an antenna system.

So, if you can give us a photo that we use we will give you a present in return, probably a full colour reproduction of your cover.

So please get out that camera and start shooting.

Cheers for now, Bob Harper VK4KNH.

Short Conditions

1. The photographs must have an Amateur Radio interest such as famous/prominent amateurs, equipment (especially Home Brew), or events such as hamfests and competitions, Jota, etc
2. You must own the rights to the photograph and be prepared to allow Amateur Radio Magazine the right to publish the photograph. Attach a piece of paper stating: "I, [your name], the copyright owner of this photograph, grant Amateur Radio Magazine the right to publish this photograph at any time and in any manner they see fit." Then sign and date the statement.
3. All photographs should be captioned with the following information: who took the photo, where and when it was taken, what the subject is and who is depicted in it.
4. The photograph must be a colour print at least 3" by 5". Photographs should be clear, well focused and with good contrast. Avoid background clutter.
5. All photographs will remain the property of the WIA and will be kept as the beginning of a photographic collection.
6. Photographs will be assessed on their content, quality and appeal. The selection will be based on publication needs and not necessarily on technical merit. The publication committee, Editor and Production Manager will have the final say on the selection..
7. Photographs should be sent to Bob Harper, PO Box 288, Beerwah 4519 and the envelopes should have a stiff insert and be marked with the words "Photographs – DO NOT FOLD"

WIA Division Directory

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually in their residential State or Territory, and each Division looks after amateur radio affairs within its area.

Division	Address	Officers		News Broadcasts Note: All times are local. All frequencies MHz.	Fees
VK1 ACT Division GPO Box 600 Canberra ACT 2601	President Secretary Treasurer	Hugh Blemings John Woolner Les Davey	VK1YYZ VK1ET VK1LD	3.590, 146.950, 438.375, 438.325, 438.225 & 438.025 FM each Sunday from 8.00pm AEST. News text on packet BCAST@VK1BBS, *http://www.vk1.wia.ampr.org & aus.radio.amateur.misc newsgroup.* Send items by packet as personal message BCAST@VK1BBS or e-mail to broadcast@vk1.wia.ampr.org.	(F) $72.00 (G) (S) $58.00 (X) $44.00
VK2 NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124) Phone 02 9689 2417 Freecall 1800 817 644 Fax 02 9633 1525	President Secretary Treasurer (Office hours Mon-Fri 11.00-14.00) Web: *http://ozemail.com.au/~vk2wi/* e-mail: *vk2wi@ozemail.com.au* Packet BBS: VK2WI on 144.850 MHz	Michael Corbin Eric Fossey Eric Van De Weyer	VK2YC VK2EFY VK2KUR	From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.170, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1273.500 (* morning only) with relays to some of 18.120, 21.170, 581.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.	(F) $69.00 (G) (S) $56.00 (X) $41.00
VK3 Victorian Division 40G Victory Boulevard Ashburton VIC 3147 Phone 03 9885 9261 Fax 03 9885 9298	President Secretary Treasurer (Office hours Tue & Thur 0830-1530) e-mail: *vk3wi@rint.com.au* Web: *http://www.tbsa.com.au/~wiavic/*	Jim Linton Barry Wilton Rob Hailey	VK3PC VK3XV VK3NC	VK3BWI broadcasts on the 1st Sunday of the month, starts 10.30 am. Primary frequencies, 3.615 LSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3WI on Victorian packet BBS and WIA VIC Web Site.	(F) $75.00 (G) (S) $61.00 (X) $47.00
VK4 Queensland Division GPO Box 638 Brisbane QLD 4001 Phone 07 3221 9377	President Secretary Treasurer e-mail: *secretary@wiaq.powerup.com.au* Web: *http://www.wiaq.powerup.com.au*	Colin Gladstone Peter Harding Alistair Elrick	VK4ACG VK4JPH VK4FTL	1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB 14.342 MHz SSB, 21.175 MHz, 28.400 MHz SSB, 29.220 MHz FM, 53.725 MHz FM, 147.000 MHz FM, 438.500 MHz (Brisbane only), and regional VHF/UHF repeaters at 0900 hrs EAST Sunday. Repeated on 3.605 MHz SSB & 147.000 MHz FM at 1930 hrs EAST Monday. Broadcast news in text form on packet under WIAQ@VKNET.	(F) $74.00 (G) (S) $60.00 (X) $46.00
VK5 South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone 08 8352 3428 Fax 08 8264 0463	President Secretary Treasurer Web: *http://www.vk5wia.ampr.org/*	Ian Hunt Merv Millar Joe Burford	VK5QX VK5MX VK5UJ	1827 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.700 FM Mid North, 146.800 FM Mildura, 146.825 FM Barossa Valley, 146.900 FM South East, 146.925 FM Central North, 147.825 FM Gawler, 438.425 FM Barossa Valley, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. 3.585 MHz and 146.675 MHz FM Adelaide, 1930 hrs Monday.	(F) $75.00 (G) (S) $61.00 (X) $47.00
VK6 West Australian Division PO Box 10 West Perth WA 6872 Phone 08 9351 8873	President Secretary Treasurer Web: *http://www.faroc.com.au/~vk6wia/* e-mail: *vk6wia@faroc.com.au*	Cliff Bastin Christine Bastin Bruce Hedland-Thomas	VK6LZ VK6ZLZ VK6OO	146.700 FM(R), 438.525 FM(R), 29.120 FM at 0930 and 1900 hrs Sundays from Perth, relayed (morning only) on 1.865, 3.564, 3.582 (Busselton), 7.075, 14.116 (North), 14.175 (East), 21.185, 50.150; (morning and evening) 146.900(R) Mt William (Bunbury), 147.00(R) Katanning, 147.200(R) Cataby, 147.250(R) Mt Saddleback (Boddington), and 147.350(R) Busselton; (evening only) 1.865, 3.564 MHz.	(F) $62.00 (G) (S) $50.00 (X) $34.00
VK7 Tasmanian Division 24 Targett Street Scamander TAS 7250 Phone 03 6372 5305	President Secretary Treasurer Web: *http://www.wia.tasnet.net* e-mail: *vk7kpg@hamnet.hotnet.com.au*	Ron Churcher Paul Godden John Klop	VK7RN VK7KPG VK7KCC	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.	(F) $74.00 (G) (S) $60.00 (X) $46.00
VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).				**Membership Grades** **Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)** **Three-year membership available to (F) (G) (X) grades at fee x 3 times.**	

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FT-920 HF/6m Transceiver With DSP

Now there's no excuse for not taking advantage of the latest advances in Digital Signal Processing, transceiver design plus the fun of 6m operation. The stunning new Yaesu FT-920 is a high performance HF/6m multi-mode base station transceiver that provides 100W PEP output on the 160-6m bands, incredible front-end performance based on the FT-1000MP design, and a huge array of features that make it a pleasure to use.

At first glance Yaesu's renowned Omni-Glow LCD screen is obvious, and its wide-angle view provides a wealth of information about the transceiver's operating status with multi-function metering, dual frequency displays and an Enhanced Tuning scale for DSP bandwidth, CW tuning, FM discriminator and more. Inside, the FT-920 is built around a rugged diecast unibody chassis which provides excellent heatsinking for the low distortion dual MRF255 160-6m FET power amplifier.

For more comfortable operating when weaker signals are present Yaesu's engineers dedicated themselves to enhancement of real-world signal to noise ratios, and after thousands of hours of design and testing have produced an industry-leading 33.3MIPS (millions of instructions per second) processing speed DSP in the FT-920 that provides a two-parameter noise reduction system with 32 steps of front panel adjustment. This amazing system also provides dual control DSP passband tuning, DSP auto-notch filter, an amazing new transmit Digital Speech Processor, DSP mic equalisation, fast acting DSP VOX circuitry as well as a Contest-ready Digital Voice Recorder!

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The FT-920 is supplied with an MH-31B8 hand mic, DC power lead and comprehensive instruction manual.

D 3420

Why not call for a copy of the Yaesu 6 page FT-920 colour brochure to learn more about this efficient transceiver that's without peer in its price class.

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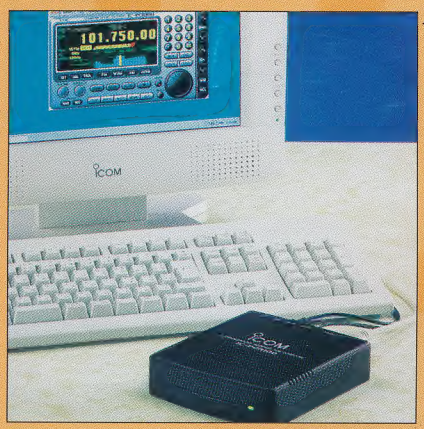

PCR100 **Cruise the air waves with your computer.** Turns your PC into a high performance 0.5 - 1300 MHz receiver (FM/WFM/AM modes) with plug'n play installation. Multi function control panel, wide frequency coverage, and unlimited memory channels.

R2 **Fit the world's airwaves in your shirt pocket.** Just 8.6cm high, wide 0.5 - 1300 MHz frequency range divided into 9 bands plus FM/WFM/AM, 400 memory channels, great sound in rugged water resistant construction.

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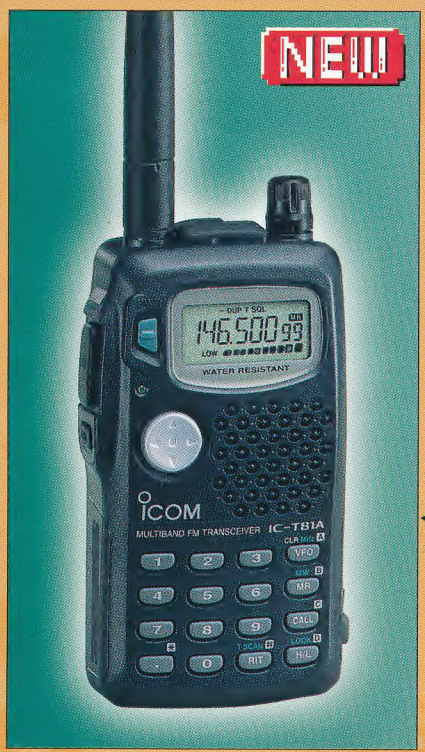

T81A **A remarkably compact quad bander.** Superb clarity on the 6m, 2m, 70cms and 23cm bands. It's water resistant, with tone squelch and pocket beep functions standard, plus you can change volume and bands even quicker with the 'joy-stick' style multi-function switch.

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